DRAFT
ENVIRONMENTAL IMPACT REPORT

SHIPYARD SEDIMENT REMEDIATION PROJECT

SAN DIEGO BAY, CALIFORNIA

State Clearinghouse No. 2009111098

VOLUME I
MAIN DOCUMENT

PREPARED FOR:

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
ACOE	United States Army Corps of Engineers
ADT	average daily traffic
AFVs	alternative fuel vehicles
AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
APCD	Air Pollution Control District
AQCD	Air Quality Conformity Determination
AQMP	Air Quality Management Plan
AQUA	Aquaculture
ARB	California Air Resources Board
ARCO	Atlantic Richfield Company
ASF	age sensitivity factor
ATSDR	Agency for Toxic Substances and Disease Registry
Basin Plan	Water Quality Control Plan for the San Diego Basin
BAU	business as usual
BIOL	Preservation of Biological Habitats of Special Significance
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CAD	Confined Aquatic Disposal
CAFE	Corporate Average Fuel Economy
CAISMP	California Aquatic Invasive Species Management Plan
Cal-Green	California Green Building Standards Code
Cal-OSHA	California Occupational Safety and Health
Caltrans	California Department of Transportation
CANOD	California Aquatic Nonnative Organism Database
CAO	Cleanup and Abatement Order
CAT	Climate Action Team
CCAA	California Clean Air Act

CCC	California Coastal Commission
CCP	Cities for Climate Protection
CCR	California Code of Regulations
CDF	Confined Disposal Facility
CDFG	California Department of Fish and Game
CDP	Coastal Development Permit
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHMIRS	California Hazardous Material Incident Reporting System
City	City of San Diego
City Guidelines	*City of San Diego California Environmental Quality Act Significance Determination Thresholds*
Cleanup Team	San Diego Water Board Cleanup Team
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COCs	contaminants of concern
COLREGS	International Regulations for Preventing Collisions at Sea 1972
COMM	Commercial and Sport Fishing
Construction General Permit	General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities
Cortese	California Environmental Protection Agency Hazardous Waste and Substances Sites (List)
County	County of San Diego
CPUC	California Public Utilities Commission
CRA	California Resource Agency
CRAF	cancer risk adjustment factor

CSLC	California State Lands Commission
CTR	California Toxics Rule
CWA	Clean Water Act
cy	cubic yards
dB	decibels
dBA	A-weighted decibels
DEH	Department of Environmental Health
DHHS	Department of Health and Human Services
DMP	Dredging Management Plan
DPM	diesel particulate matter plus diesel exhaust organic gases
DPS	Distinct Population Segment
Draft CPU	Draft Barrio Logan/Harbor 101 Community Plan Update
DRO	Diesel Range Organics
DTR	Draft Technical Report
DTSC	Department of Toxic Substances Control
ECOS	Environmental Conservation Online System
EDR	Environmental Data Resources, Inc.
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EPAct 1992	Energy Policy Act of 1992
EPAct 2005	Energy Policy Act of 2005
ESHAs	environmentally sensitive habitat areas
EST	Estuarine Habitat
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FIRM	Flood Insurance Rate Map
FMPs	Fishery Management Plans
FR	Federal Register
GCC	global climate change
GHG	greenhouse gases
GWP	global warming potential
H&S Plan	Health and Safety Plan
HA	Hydrologic Area

HAPCs	Habitat Areas of Particular Concern
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HI	hazard index
HOVs	high-occupancy vehicles
HPAH	high molecular weight polynuclear aromatic hydrocarbons
HRA	health risk assessment
HSA	Hydrologic Subarea
HSC	Health and Safety Code
HU	Hydrologic Unit
I-15	Interstate 15
I-5	Interstate 5
I-805	Interstate 805
ICLEI	International Council for Local Environmental Initiatives
IMO	International Maritime Organization
IND	Industrial Service Supply
INRMP	Integrated Natural Resources Management Plan
IPCC	United Nations Intergovernmental Panel on Climate Change
IS	Initial Study
ITS	Intelligent Transportation System
JURMP	Jurisdictional Urban Runoff Management Program
LA-5	San Diego 100 Fathom
lbs/day	pounds per day
LCP	Local Coastal Program
L_{dn}	day-night average noise level
LEA	Local Enforcement Agency
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent continuous sound level
LID	Low Impact Development
L_{max}	maximum noise level
L_N	percentile noise exceedance level
LOS	level of service
LRTPs	Long-Range Transportation Plans
LUST	leaking underground storage tank
MAR	Marine Habitat

MBTA	Migratory Bird Treaty Act
mcy	million cubic yards
MEI	maximum exposed individual
mg/L	milligrams per liter
MICR	maximum individual cancer risk
MIGR	Migration of Aquatic Organisms
ml	milliliters
MLLW	mean lower low water
MLMA	Marine Life Management Act
MMAs	marine managed areas
MMPA	Marine Mammal Protection Act
MMRP	Mitigation Monitoring and Reporting Program
MPAs	marine protected areas
mpg	miles per gallon
mph	miles per hour
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MPRSA	Marine Protection, Research, and Sanctuaries Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSCP	Multiple Species Conservation Program
MTDB	Metropolitan Transit Development Board
MTS	Metropolitan Transit Service
MWh	megawatt hour
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NAS Database	Nonindigenous Aquatic Species Database
NASSCO	National Steel and Shipbuilding Company
NAV	Navigation
Navy	United States Department of the Navy
NCCP	Natural Community Conservation Plan
NDS	National Data and Surveying Services
NEPA	National Environmental Policy Act
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NEVP	North Embarcadero Visionary Plan

NHTSA	National Highway Traffic Safety Administration
NMFP	Nearshore Fishery Management Plan
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NOT	Notice of Termination
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NWR	National Wildlife Refuge
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OMB	White House Office of Management and Budget
OPH	Old Police Headquarters
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAHs	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	passenger car equivalent
PEIR	Program Environmental Impact Report
PFCs	perfluorocarbons
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
PMP	Parking Management Plan
Port District	San Diego Unified Port District
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
POTW	Publically Owned Treatment Works
PPE	Personal Protective Equipment
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PRMP	Post-remedial Monitoring Plan
QAPP	Quality Assurance Protection Plan

QSD	Qualified SWPPP Developer
RAP	Remedial Action Plan
RAQS	Regional Air Quality Strategy
RARE	Rare, Threatened, or Endangered Species
RCRA CORRACTS	Resource Conservation and Recovery Act Corrective Action Sites
REC-1	Contact Water Recreation
REC-2	Non-contact Water Recreation
Regional Water Boards	Regional Water Quality Control Boards
RES	Regional Energy Strategy
RMP	Remedial Monitoring Plan
RMS	root-mean-square (velocity)
ROCs	reactive organic compounds
RRO	Residual Range Organics
RSWA	Regional Solid Waste Association
RTP	Regional Transportation Plan
RURMP	Regional Urban Runoff Management Plan
SAA	Streambed Alteration Agreement
SAL	Saline Habitat
SAM	Site Assessment and Mitigation Program
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SANDAG	San Diego Association of Governments
SANTEC	San Diego Traffic Engineers' Council
SCEMP	Southern California Eelgrass Mitigation Policy
SCH	State of California Clearinghouse
SCS	Sustainable Communities Strategy
SDAB	San Diego Air Basin
SDG&E	San Diego Gas and Electric Company
SDIA	San Diego International Airport
SF_6	sulfur hexafluoride
SHELL	Shellfish Harvesting
SIP	State Implementation Plan
SLIC	Spills, Leaks, Investigations, and Cleanups
SMARTS	Storm Water Multi-Application and Report Tracking System
SO_2	sulfur dioxide

SOPs	Standard Operating Procedures
SO_X	oxides of sulfur
SPWN	Spawning, Reproduction, and/or Early Development
sq mi	square miles
SQGs	sediment quality guidelines
SR-15	State Route 15
SR-54	State Route 54
SR-75	State Route 75
SR-94	State Route 94
State Water Board	State Water Resources Control Board
State Parks	California Department of Parks and Recreation
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
T-BACT	best available control technology for toxics
TBT	tributyltin
TDM	Transportation Demand Management
TMDL	total maximum daily load
TSD	Technical Support Document
USCG	United States Coast Guard
U.S. DOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
U.S. FWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
v/c	volume-to-capacity
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WARM	Warm Freshwater Habitat
WDID	Waste Discharger Identification
WDRs	Waste Discharge Requirements
WILD	Wildlife Habitat
WQCP	Water Quality Control Plan
WURMPs	Watershed Urban Runoff Management Plans
YOTY	Young-of-the-Year

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Executive Summary has been prepared according to the California Environmental Quality Act (CEQA) Guidelines Section 15123 for the Environmental Impact Report (EIR) for the Shipyard Sediment Remediation Project. This EIR has been prepared by the San Diego Water Board to analyze the proposed project's potential impacts on the environment, to discuss alternatives, and to propose mitigation measures for identified potentially significant impacts that will minimize, offset, or otherwise reduce or avoid those environmental impacts.

1.2 SUMMARY OF PROJECT DESCRIPTION

The proposed Shipyard Sediment Remediation Project (proposed project) is the dredging of sediment adjacent to shipyards in the San Diego Bay; the dewatering, solidification of the dredged material (onshore or on a barge); the potential treatment of decanted water (anticipated disposal to the sanitary sewer system); and the transport of the removed material to an appropriate landfill for disposal. The study area for the sediment removal project is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west.

The San Diego Water Board stipulated that several agencies and/or parties caused or permitted the discharge of waste to the Shipyard Sediment Remediation Site that has resulted in the accumulation of waste in the marine sediment. The contaminated marine sediment has caused conditions of contamination or nuisance in San Diego Bay that adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses.

The purpose of the project is to implement a Tentative Cleanup and Abatement Order (CAO) issued by the California Regional Water Quality Control Board, San Diego Region (hereinafter referred to as the San Diego Water Board). The Tentative CAO established alternative cleanup levels for the project that are the lowest technologically and economically achievable levels as required under California Code of Regulations (CCR) Title 23 section 2550.4(e).

1.3 ALTERNATIVES

The following four alternatives to the proposed project were selected for consideration, as required by CEQA:

- **Alternative 1:** No Project/No Development
- **Alternative 2:** Confined Aquatic Disposal (CAD) Site
- **Alternative 3:** Convair Lagoon Confined Disposal Facility (CDF)
- **Alternative 4:** CDF with Beneficial Use of Sediments

Please see Chapter 5.0 for more information regarding the proposed alternatives.

1.4 AREAS OF CONTROVERSY

Pursuant to State CEQA Guidelines Section 15123, this EIR acknowledges the areas of controversy and issues to be resolved that are known to the San Diego Water Board or were raised during the scoping process.

Issues and concerns raised at the scoping meeting held on January 21, 2010, and comments submitted in writing during the Notice of Preparation (NOP) process included: (1) concerns regarding disproportionate impacts to low-income and/or minority communities (environmental justice); (2) release of contaminants during the cleanup activities and the effects to marine biological resources; (3) additional information regarding a confined aquatic disposal alternative; and (4) question about the need for an EIR for a CAO. The Draft EIR addresses each of these areas of concern in detail.

Environmental justice is addressed in Appendix H and in each of the topical sections included in Chapter 4.0. The potential for release of contaminants during the cleanup activities is addressed in Sections 4.2, Hydrology and Water Quality; Section 4.3, Hazards and Hazardous Materials; and Section 4.5, Biological Resources. Additional information regarding a confined aquatic disposal alternative is included in Chapter 5.0 of this EIR. Although the IS had anticipated that the EIR would not further evaluate a CAD alternative, one has been included (Alternative 2) and evaluated in this Draft EIR in response to this comment on the NOP. Although one of the shipyards questioned the need for an EIR for the Tentative CAO, the San Diego Water Board has determined that the proposal under consideration is a "project" as defined by CEQA Guidelines section 15180, that the undertaking may have a significant impact on the environment, and that that an EIR must be prepared.

If the EIR is certified, the San Diego Water Board may choose to approve the proposed project or one of the alternatives. If the San Diego Water Board approves the proposed project, or one of the alternatives, a determination may be made at that time or in the future with regard to the most appropriate staging area site for the sediment removal.

1.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 1.A identifies the project environmental impacts, a significance determination, proposed mitigation measures, and level of significance after mitigation is incorporated into the project. Table 1.A also identifies cumulative impacts resulting from the proposed project in conjunction with the related cumulative projects. Environmental topics addressed in this EIR include: Transportation and Circulation, Hydrology and Water Quality, Hazards and Hazardous Materials, Noise, Biological Resources, Air Quality, and Climate Change and Greenhouse Gas (GHG) Emissions.

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
TRAFFIC AND CIRCULATION			
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 system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	With the implementation of project traffic for Staging Areas 1 through 4, significant impacts are forecast at the Interstate 5 (I-5) southbound ramp/Boston Avenue intersection and the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp.	**4.1.1:** Should one or more of Staging Areas 1 through 4 be selected, the contractor shall require, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify, that the project-related truck traffic is routed on Harbor Drive (southbound) to the Civic Center Drive access to Interstate 5 (I-5) for the duration of the dredge-and-haul activity. Haul, delivery, and employee traffic shall be discouraged at the I-5 southbound ramp/Boston Avenue intersection and on the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp.	Less than significant
	If existing parking areas are used for the dewatering and treatment of sediment, the displacement of parking could result in a shortage of parking needed for employees in these areas.	**4.1.3:** Should one or more of Staging Areas 1 through 4 be selected, the responsible parties, in consultation with the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), San Diego Unified Port District (Port District), and City of	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		San Diego, shall prepare a Parking Management Plan (PMP) to identify appropriate substitute parking areas, shuttles, and commuter routes, as necessary, to meet the need created by the short-term loss of employee parking spaces. The need for off-site parking shall be based on anticipated employment during the dredge period (which may be reduced compared to existing conditions as a result of the dredge activity displacing some ship building/repair activity), and the loss of parking in the selected staging area. The PMP shall be approved by the City of San Diego Traffic Engineer prior to the initiation of dredging, and its implementation shall be verified by the San Diego Water Board.	
Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand	The project trip generation is below the Congestion Management Plan (CMP) trip generation thresholds. In addition, the proposed project is for the dredge, treatment, and removal of sediment,	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
measures, or other standards established by the county congestion management agency for designated roads or highways.	and will not result in any long-term changes to shipyard operations or operational traffic impacts. Therefore, the proposed project will not conflict with the applicable CMP.		
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.	The project would not result in a permanent change to air traffic patterns.	No mitigation is required.	Less than significant
Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	The dredge, treatment, and transport of sediment does not include any operational changes to the shipyard or other facilities, or long-term improvements to circulation or transportation facilities, and would not create hazardous conditions related to transportation design features.	No mitigation is required.	Less than significant
Result in inadequate emergency access.	The proposed project traffic will use existing streets that currently experience truck traffic as a result of port industrial and marine uses in the area. No temporary or permanent street closures are required. As noted in the	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	Initial Study (IS), there would be no change to existing emergency access routes.		
Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	Bayshore Bikeway Segment 5 could be implemented prior to or during the active dredge period, and there is the potential for project-related tuck trips to interfere with the implementation and/or operation of the bikeway.	**4.1.2:** Should Staging Area 5 be selected, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall consult with the San Diego Association of Governments (SANDAG) and the San Diego Unified Port District (Port District) on the implementation status of Segment 5 of the Bayshore Bikeway in order to locate the staging activity away from the planned bike path. The consultation shall include information regarding the specific location, configuration, and operation of the temporary staging area, as well as appropriate bikeway safety and access considerations. If Staging Area 5 is selected, the contractor shall implement the staging area as agreed to by the agencies.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Cumulative Traffic Impacts	Cumulative projects are not expected to use the same haul routes as the proposed project.	No mitigation is required.	Less than significant
HYDROLOGY AND WATER QUALITY			
Violate any water quality standards or waste discharge requirements.	The project activities could degrade water quality by introducing sediments and contaminants into the water column that could increase turbidity and degrade acceptable levels of habitat quality for organisms in the water column. In addition, the primary and secondary constituents of concern could be released when bed sediments are suspended in the water column.	**4.2.1:** During dredging operations, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the contractor/dredge operator is using automatic rather than manual monitoring of the dredging operations, which will allow continuous data logging with automatic interpretation and adjustments to the dredging operations for real-time feedback for the dredge operator. Automatic systems shall also be used to monitor turbidity in the vicinity of the dredging operations to facilitate real-time adjustments by the dredging operators to control temporary water quality effects. The automatic systems shall include threshold level alarms so that the operator or other appropriate project personnel recognize that a particular system within the	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		operation has failed. If the threshold-level alarms are activated, the dredge operator shall immediately shut down or modify the operations to reduce water quality constituents to within threshold levels. The San Diego Water Board shall further verify that the contractor/ dredge operator is using visual monitoring and recording of water turbidity during the dredging operations, including the temporary cessation of dredging if exceedances of the turbidity objective in the Basin Plan occur. Water quality sampling for contaminants of concern (COCs) shall be required if silt curtains are not deployed during any phase of the in-water activities. **4.2.2:** During dredging operations, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the dredge contractor is implementing	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		standard Best Management Practices (BMPs) for minimizing resuspension, spillage, and misplaced sediment during dredging operations, as the deposition of such material would increase turbidity and compromise cleanup efforts. Such BMPs shall include, but not be limited to, the following: • The contractor shall not stockpile material on the bottom of the San Diego Bay floor and shall not sweep or level the bottom surface with the bucket. • The contractor shall use and maintain double silt curtains that encircle the area of dredging and shall minimize the times in which these curtains are temporarily opened, to contain suspended sediments. • The contractor may use air curtains in conjunction with silt curtains to contain re-suspended sediment, to	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		enhance worker safety, and allow barges to transit into and out of the work area without the need to open and close silt curtain gates. • The contractor shall ensure the environmental clamshell bucket is entirely closed when withdrawn from the water and moved to the barge. This action requires extra attention when debris is present to make sure debris does not prevent the bucket from completely closing. Two closure switches shall be on each side of the bucket near the top and bottom to provide an electrical signal to the operator that the bucket is closed. Use of the switches shall minimize the potential of sediment leaking from the bucket into the water column during travel to the surface. • The contractor shall not overfill the digging bucket because overfill	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		results in material overflowing back into the water. Use of instrumentation such as Clam Vision® shall allow the operator to visualize in real time the depth of cut that shall be designed to prevent overfilling. • The contractor shall utilize wide-pocket material barges having watertight containments to prevent return water from re-entering San Diego Bay. The contractor shall not overfill the material barge to a point where overflow or spillage could occur. Each material barge shall be marked in such a way to allow the operator to visually identify the maximum load point. The marking should allow sufficient interior freeboard to prevent spillage in rough water such as ship wakes during transit. Initiating the material barge marking shall minimize impact of load spillage	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		during transit to the unloading area. • The contractor shall not use weirs as a means to dewater the scow and shall allow additional room for sediment placement. Preventing this action shall minimize the introduction of turbidity to the water column. • The contractor shall place material in the material barge such that splashing or sloshing does not occur, which could send sediment back into the water. Splashing can be controlled by restricting the drop height from the bucket. • If the use of a grate to collect debris is required, the contractor shall not allow material to pile up on the grid and flow or slip from the grid back into the water. The debris scalper shall be positioned in such a way as to be totally contained on the shore side of the unloading operations.	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		The dredge operator shall visually monitor for debris build-up and alert the support personnel on the barge to assist in clearing the debris, as necessary. Debris that is derived from dredging activities shall be removed from the grate by the environmental clamshell bucket and placed in a contained area on the dredge barge or in a second material barge for subsequent removal to the onshore dewatering facility. • The contractor shall restrict barge movement and work boat speeds (i.e., reducing propeller wash) in the dredge area. The remedial design should identify the various areas where this operational control should be used. **4.2.3:** During dredging operations, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the contractor is deploying inner- and outer-	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		boundary floating silt curtains fully around the dredging area at all times. Double silt curtains shall be utilized for containment of the dredge area; configurations, technologies, and actual locations of silt curtains in relation to the dredge barge shall be finalized during the design phase of the project. The floating silt curtain shall be comprised of connected lengths of Type III geotextile fabric. A continuous length of floating silt curtain shall be arranged to fully encircle the dredging equipment and the scow barge being loaded with sediment. The silt curtain shall be supported by a floating boom in open water areas (such as along the bay ward side of the dredging areas). Along pier edges, the contractor shall have the option of connecting the silt curtain directly to the structure. The contractor shall continuously monitor the silt curtain for damage, dislocation, or gaps and immediately fix any locations	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		where it is no longer continuous or where it has loosened from its supports. The bottom of the silt curtain shall be weighted with ballast weights or rods affixed to the base of the fabric. Where feasible and applicable, the floating silt curtains shall be anchored and deployed from the surface of the water to just above the substrate. If necessary, silt curtains with tidal flaps may be installed to facilitate curtain deployment in areas of higher flow. Air curtains may be used in conjunction with silt curtains to contain resuspended sediment, enhance worker safety, and allow barges to transit into and out of the work area without the need to open and close silt curtain gates. **4.2.4:** Throughout the remediation process of dredging and application of the clean sand covers, the contractor shall conduct water quality monitoring to demonstrate that implementation of the remedial activities does not result in	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		violations of water quality objectives in the Basin Plan outside of the construction area. The contractor shall submit weekly water quality reports to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). If water quality objectives are violated, the San Diego Water Board may temporarily halt activity and impose additional required measures to protect water quality. **4.2.5:** Prior to initiation of dredging activities, the contractor shall determine the swing radius of the unloading equipment and shall place a steel plate (swing tray or spill plate) between the material barge and the hard cape to prevent spillage from falling directly into the water. The steel plate shall be sufficiently large enough to cover the swing radius of the unloading equipment. The spill plate shall be designed to prevent any "drippings"	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		from falling between the material barge and dock where the unloading equipment is stationed. The spill plate shall be positioned so that any "dripped" material/water either runs back into the material barge or onto the unloading dock, which shall be lined with an impermeable material and beamed to contain excess sediment/ water. The steel plate shall be designed to prevent any water or sediment from re-entering San Diego Bay. As a secondary containment measure, filter fabric material shall be placed over the spill plate and between edges of the barge and unloading dock to prevent any drippings from falling into San Diego Bay. Upon completion of unloading a material barge, the spill plate shall be cleaned as necessary so that any dried sediment is not discharged or released to the atmosphere. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board)	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		shall be responsible for ensuring adherence to the requirements of this measure. **4.2.6:** During dredging activities, the contractor shall ensure that the environmental clamshell bucket is entirely closed when withdrawn from the barge and moved to the truck. In addition, the contractor shall ensure that the bucket is completely empty of sediment prior to being moved back to the barge to minimize sediment being spilled over the dock. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for ensuring adherence to the requirements of this measure. **4.2.7:** During final design of the clean sand covers, the sand layer thickness shall designed to prevent substantial perturbation (mixing and overturning)	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		of underlying contaminated sediments, erosion (e.g., propeller wash), and the upward chemical migration into the clean sand covers. The clean sand cover design shall physically isolate the sediments from benthic or epigenetic organisms to prevent the uptake of bioaccumulative contaminants (i.e., polychlorinated biphenyls [PCBs]) by aquatic organisms either directly from the sediments or by foraging on benthos. The physical isolation component of the clean sand covers may include separate sub-components for isolation, bioturbation, and consolidation. The clean sand covers shall be designed to stabilize the contaminated sediments being covered and prevent them from being resuspended and transported off site. In addition, the clean sand covers shall be designed to be resistant to erosion, including propeller wash, flow, and tidal-induced erosion. The final engineering plans shall include the	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		source and type of sand required for subaqueous application of the clean sand covers. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall review and have approval authority for the final engineering plans, and shall verify implementation. A regulatory oversight contractor may be used by the San Diego Water Board. **4.2.8:** During application of the clean sand covers, the contractor shall place the initial layers of the clean sand cover in thin lifts by hydraulically placing the material from a barge in order to reduce the vertical impact and lateral spreading of the clean sand cover material and the potential for resuspending the contaminated surface sediments. Controlled placement shall also minimize the mixing of the clean sand covers and underlying sediment by allowing the sediment to slowly gain	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		strength before subsequent layers are deposited. Operational controls such as silt curtains shall also be employed during placement of the clean sand covers. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), with the assistance of a regulatory oversight contractor, shall be responsible for ensuring adherence to the requirements of this measure. **4.2.9:** Prior to dredging operations, a Dredging Management Plan (DMP) shall be prepared. The contractor shall implement the measures listed in the DMP during dredging operations. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for review and approval of the DMP. The DMP shall contain Standard Operating Procedures (SOPs) for the project to assist the dredge contractor in preventing accidental	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		spills and providing the necessary guidelines to follow in case of an oil or fuel spill. In addition to providing SOPs to prevent accidental oil/fuel spills during construction activities, the DMP shall address the identification of dredging needs, a methodology and process for determining dredging priorities and scheduling, the feasibility and requirements for expedited permitting, Quality Assurance Project Plan (QAPP) to comply with regulatory requirements, alternatives for control and operation of dredging equipment, and Best Management Practices (BMPs) to implement in the event of equipment failure and/or repair. Typical BMPs for equipment failure or repair shall be identified in the DMP and could include: communication to project personnel, proper signage and/or barriers alerting others of potentially unsafe conditions, all repair work to be conducted on land and not over water,	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		repair work involving use of liquids to be performed with proper spill containment equipment (e.g., spill kit), and a contingency plan identifying availability of other equipment or subcontracting options. Furthermore, the DMP shall specify that water discharges to San Diego Bay are prohibited; therefore, the barge shall implement measures necessary to capture all return water and prevent discharge to San Diego Bay. In addition, the DMP shall include, at a minimum, the following measures to prevent accidental oil/fuel spills during construction activities: • As an operational control element, all oil and fuel shall be housed in a secondary containment structure to ensure that any spill or leakage is prevented from entering the water column. • Personnel involved with dredging and handling the dredged material	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		shall be given training on the potential hazards resulting from accidental oil and/or fuel spills. This operational control shall provide the personnel with an awareness of the materials they are handling as well as the potential impact to the environment. • All equipment shall be inspected by dredge contractor personnel before starting the shift. These inspections are intended to identify typical wear or faulty parts that may contain oil or fuel. • Personnel shall be required to visually monitor for oil or fuel spills during construction activities. • In the event that a sheen or spill is observed, the equipment shall be immediately shut down and the source of the spill identified and contained. Additionally, the spill shall be reported to the applicable	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		agencies presented in the DMP. • The shipyards currently have oil/ fuel spill kits located at various locations on site for routine ship repair operations. All personnel associated with dredging activities shall be trained on where these spill kits are located, how to deploy the oil sorbent pads, and proper disposal guidelines. The dredging barge shall have a full complement of oil/ fuel spill kits on board to allow for quick and timely implementation of spill containment. • The floats on the silt curtains will serve as oil booms in the event that a spill occurs. This operational control shall be the last line of defense against accidental oil/fuel spill occurrences. The San Diego Water Board shall be responsible for verifying adherence to the requirements of this measure.	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		4.2.10: The containment area constructed around the dewatering containment cell shall be designed to consist of berms (K-rails and/or dry dock blocks) surrounding the area that restrict decanted water/storm water to the land adjacent to the dewatering containment and prevent the water from flowing into San Diego Bay or the water table if a breach in the pad were to occur. If any area(s) adjacent to the dewatering containment cell are unpaved, a liner shall be utilized if necessary to prevent infiltration. The containment cell shall be designed as a "no discharge" facility and in a manner that prevents storm water runoff/run-on from adjacent areas to the cell from entering the dewatering area. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall review and approve the design of the dewatering	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		containment cell and verify its implementation in accordance with approved plans. **4.2.11:** If a containment liner is used, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the contractor has provided a salvaging layer of sand that is properly designed and implemented to provide a visual indicator to the excavator operator that he/she is getting close to the containment liner, or the use of closely spaced K-rails and dry dock blocks at key points (i.e., corners) to prevent the operator from getting to the containment liner, in order to prevent a breach in the dewatering pad. **4.2.12:** During dewatering operations, the contractor shall comply with the provisions of the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water*	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit, as they relate to activities conducted in the staging areas. This shall include submission of the Permit Registration Documents, including a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board (State Water Board) via the Storm Water Multi-Application and Report Tracking System (SMARTS) at least 7 days prior to the start of dewatering activities at the staging areas. Construction activities shall not commence until a Waste Discharger Identification (WDID) number is received from the SMARTS. The SWPPP shall be prepared by a Qualified	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		SWPPP Developer (QSD); shall meet the requirements of the Construction General Permit; and shall identify potential pollutant sources associated with dewatering activities, identify non-storm water discharges, and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site. BMPs shall include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control. The BMPs identified in the SWPPP shall be implemented during project construction. An Annual Report shall be submitted using the SMARTS no later than September 1 of each year during dewatering operations. A Notice of Termination (NOT) shall be submitted to the State Water Board within 90 days of completion of dewatering activities and stabilization of the site. The California Regional Water Quality Control Board, San Diego	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Region (San Diego Water Board) shall be responsible for verifying the contractor's adherence to the requirements of this measure. **4.2.13:** Prior to any discharge to the sanitary sewer system, the contractor shall ensure that the decanted water is analytically tested following the discharge requirements for the San Diego Publically Owned Treatment Works (POTW). If water samples exceed the City of San Diego requirements for discharge of wastewater to the sanitary sewer system, the water shall be taken off site for treatment and subsequent disposal. In addition, the contractor shall comply with any limits on pollutant concentrations, discharge times, and flow rates required by the City of San Diego. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		be responsible for verifying the contractor's adherence to the requirements of this measure.	
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have a significant impact with respect to the groundwater resources.	No mitigation is required.	Less than significant
Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have a	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
siltation on- or off-site.	significant impact with respect to drainage patterns.		
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 which would result in flooding on- or off-site.	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have a significant impact with respect to drainage patterns or flooding.	No mitigation is required.	Less than significant
Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have a significant impact with respect to storm drain capacity.	No mitigation is required.	Less than significant
Otherwise substantially degrade water quality.	See above.	See Mitigation Measures 4.2.1 through 4.2.13 above.	Less than significant
Place housing within a 100-	The proposed project involves the	No mitigation is required.	Less than

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have a significant impact with respect to flooding or flood hazard areas.		significant
Place within a 100-year flood hazard area structures which would impede or redirect flood flows.	The proposed project would not have a significant impact with respect to the following: groundwater resources, drainage patterns, storm drain capacity, flooding, or inundation.	No mitigation is required.	Less than significant
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.	The proposed project would not have a significant impact with respect to flooding.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Result in inundation by seiche, tsunami, or mudflow.	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have a significant impact with respect to inundation by seiche, tsunami, or mudflow.	No mitigation is required.	Less than significant
Cumulative Hydrology and Water Quality Impacts	There is the potential for a project involving contaminated sediment removal to occur concurrently with the Shipyard Sediment Site remedial effort.	**4.2.14:** The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall coordinate water quality monitoring efforts and share water quality monitoring data with other dredging projects in San Diego Bay throughout the duration of the project. Considerations for the issuance of dredge permits or General Waste Discharge Requirements (WDRs) shall include distance(s) between sites and proposed timing of in-water activities that shall involve potential impacts to	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		water quality, selection of appropriate water quality reference sampling locations in San Diego Bay, configuration of silt curtains, and coordination of expected commercial and recreational vessel traffic.	
HAZARDS AND HAZARDOUS MATERIALS			
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Implementation of the proposed project, including dredging, sediment transport to unloading area, sediment unloading/transport to staging area, sediment drying/dewatering, load out, transport, and disposal has the potential to release hazardous materials, resulting in a significant hazard to the public or the environment.	**4.3.1: Secondary Containment.** As an operational control element, the contractor shall ensure, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) will verify, that all oil and fuel is housed in a secondary containment structure to ensure that spilled or leaked oil or fuel will be prevented from entering the water column. **4.3.2: Dredging Management Plan.** The contractor shall ensure that a Dredging Management Plan (DMP) containing Standard Operating Procedures (SOPs) for the project is developed prior to the initiation of	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		dredging and implemented for the duration of the dredging activity. The DMP will include the following measures to prevent release of hazardous materials during construction activities: • Personnel involved with dredging and handling the dredged material will be given training on their specific task areas, including: o Potential hazards resulting from accidental oil and/or fuel spills; o Proper dredging equipment operation; and o Proper silt curtain deployment techniques. • All equipment will be inspected by the dredge contractor and equipment operators before starting the shift. These inspections are intended to identify typical wear or faulty parts.	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		• Required instrumentation to avoid spillage of dredging material will be identified for each piece of equipment used during dredging operations. • Personnel will be required to visually monitor for oil or fuel spills during construction activities. • In the event that a sheen or spill is observed, the equipment will be immediately shut down and the source of the spill identified and contained. Additionally, the spill will be reported to the applicable agencies presented in the DMP. • All personnel associated with dredging activities will be trained as to where oil/fuel spill kits are located, how to deploy the oil-absorbent pads, and proper disposal guidelines. The dredging barge shall have a full complement of oil/fuel spill kits on board to allow for quick and timely implementation	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		of spill containment. • The use of oil booms will be deployed surrounding the dredging activities. In the event that a spill occurs, the oil and/or fuel will be contained within the oil boom boundary. The silt curtains may act as an oil boom, provided absorbent material is deployed during a spill. • Shallow areas along the haul route will be mapped and provided to the dredge operator for review. These areas will be avoided to the extent possible to prevent propeller wash resuspension of sediment. • Load-controlled barge movement, line attachment, and horsepower requirements of tugs and support boats at the project site will be specified to avoid resuspension of sediment. • Barge load limits and loading procedures will be identified, and	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		the appropriate draft level will be marked on the materials barge hull. Implementation of the DMP will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.3.3: Contingency Plan.** The contractor shall ensure that a Contingency Plan has been developed prior to the initiation of dredging and implemented for the duration of the dredging activity to address equipment and operational failures that could occur during dredging operations. The Contingency Plan will include the following measures to prevent release of hazardous materials during construction activities: • Actions to implement in the event of equipment failure, repair, or silt curtain breach. These include:	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		o Communication to project personnel; o Proper signage and/or barriers alerting others of potentially unsafe conditions; o Specification for repair work to be conducted on land and not over water; o Identification of proper spill containment equipment (e.g., spill kit); o A plan identifying availability of other equipment or subcontracting options; o Emergency procedures to follow in the event of a silt curtain breach; o Incident reporting and review procedure to evaluate the causes of an accidental silt curtain breach and steps to avoid further breaches; and o Response procedures in the	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		event of barge overfill. Implementation of the Contingency Plan will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.3.4: Health and Safety Plan.** The contractor shall ensure that a Health and Safety Plan (H&S Plan) has been developed prior to the initiation of dredging and implemented for the duration of the dredging activity to protect workers from exposure to contaminated sediment. The H&S Plan will include the following requirements at a minimum: • Training for operators to prevent spillage of sediment on the bridges during dredging activities • Training for operators in decontamination and waste containment procedures	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		• Identification of appropriate Personal Protection Equipment (PPE) for all activities, including sediment removal, management, and disposal • Certification of personnel under safety regulations such as Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120 • Documentation that requires that health and safety procedures have been implemented Implementation of the H&S Plan will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.3.5: Communication Plan.** The contractor shall ensure that a Communication Plan and operational	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		guidelines are developed between the Port of San Diego and/or the Harbor Master and all vessel operators prior to the initiation of dredging to ensure the safe movement of project vessels from the dredge to the unloading area. Features of the Communication Plan will include at a minimum: • Identification of vessel speed limitations (wake/no wake); and • Notification to project personnel using air horns as necessary. Implementation of the Communication Plan for the duration of the dredging activity will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.3.6: Sediment Management Plan.** The contractor shall implement Best Management Practices (BMPs) and follow Standard Operating Procedures (SOPs) during sediment unloading,	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		transport, drying/dewatering, and disposal operations for the duration of the dredging activity. At a minimum, these BMPs/SOPs will include: • The speed of the crane's swing arm shall be limited; • Placement of a spillage plate to prevent any dropped sediment from impacting the water column; • Conveyance of sediment on the spillage plate to a collection sump; • Utilization of a power washing to clean sediment from equipment, such as the spill plate, into the collection sump, if present; • Contractor identification of haul truck load limits on first load each day; • Driver training and enforcement of safe driving procedures; • Only liquid drying agents will be utilized to avoid airborne release of these materials;	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		• Implementation of a dust control and monitoring plan during sediment staging; • The stockpile liner will be protected from excavator penetration by a visual indicator such as sand, or by physical barriers such as railroad rails or K-rails; • Decanted water from sediment and any storm water in the staging area will be managed by sloping the staging area to a common sump or pond (containment cell) or pumped to a series of tanks. The containment device(s) will be designed to meet a performance standard of "no discharge" so that storm water runoff cannot enter the bay or adjacent areas and to ensure that storm water surrounding areas cannot penetrate the containment area. The containment device(s) will be inspected daily during sediment staging. Prior to discharge, the liquid will be tested to	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		evaluate whether it meets discharge criteria for the San Diego Publically Owned Treatment Works (POTW) or if treatment is required prior to discharge; • Sediment loading for transport off site will be conducted in a contained area, and haul trucks will be power washed prior to exit to prevent sediment from being discharged to the bay or surrounding area; and • All hazardous materials (liquid, sediment, or chemicals used during the project) will be handled, transported, and disposed of at the proper disposal facility in accordance with state regulations. Implementation of these BMPs/SOPs will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		4.3.7: Hazardous Materials Transportation Plan. Prior to the initiation of dredging, the contractor shall prepare and implement a Hazardous Materials Transportation Plan for the duration of the dredging activity that specifies the following procedures at a minimum: • Sediment containment procedures • Emergency notification procedures The Hazardous Materials Transportation Plan will be subject to review by, and its implementation will be verified by, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.3.8: Traffic Control Plan.** The contractor shall prepare a Traffic Control Plan that will be developed prior to the initiation of dredging and implemented for off-site transport of the sediment, and will include, but not be	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		limited to, the following information: • Planned haul truck routes • Haul truck escorts, if required • In case of accidental spillage, emergency vehicle access and sediment containment and removal procedures The Traffic Control Plan will be subject to approval by the City of San Diego and/or the National City Traffic Engineer, and implementation for the duration of the dredging activity will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
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.	See above.	See above.	Less than significant
Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Perkins Elementary School is located within 0.25 mile of Staging Areas 1 and 2. However, the school is not located along the proposed project or mitigation haul route and would not be significantly impacted by hazardous materials.	No mitigation is required.	Less than significant
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.	The Shipyard Sediment Site and staging areas are not on or adjacent to a listed site on the active California Environmental Protection Agency Hazardous Waste and Substances Sites (Cortese) list.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
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 a project area.	The proposed project is not located within hazard areas identified in an airport land use plan.	No mitigation is required.	Less than significant
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.	The proposed project is not within the vicinity of a private airstrip.	No mitigation is required.	Less than significant
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	The proposed project would not impair implementation of an emergency response plan or emergency evacuation plan.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
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 residents are intermixed with wildlands	The proposed project is not located in an area subject to risk of wildland fires.	No mitigation is required.	Less than significant
Cumulative Hazards and Hazardous Materials Impact	With implementation of Mitigation Measures 4.3.1 through 4.3.8 for project impacts and Mitigation Measure 4.2.14 for cumulative impacts, the impacts of the proposed project in combination with reasonably foreseeable projects in the surrounding areas would not contribute to significant cumulative impacts to people or the environment due to exposure to hazardous materials.	No additional mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
NOISE			
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.	Noise generated by the proposed project activities, including dredge, treatment, and removal of sediment, would not exceed local noise standards.	No mitigation is required.	Less than significant
Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operations would occur as a result of the proposed project.	No mitigation is required.	Less than significant
A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operations would occur as a result of the proposed project.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	If any one of Staging Areas 1 through 4 were selected, there is the potential for noise impacts from increased truck and vehicle trips on the portion of the haul route along Boston Avenue. If either Staging Area 1 or 2 were to be selected, there is the potential for impacts to Cesar Chavez Park from the operation of equipment and dewatering/treatment activities. If Staging Area 4 were to be selected, there is the potential for residential uses located along Main Street in the City of San Diego to be affected by noise from equipment operation and dewatering treatment activities. If Staging Area 5 were to be selected, there is the potential for residential uses along Cleveland Avenue, Pepper Park, and Pier 32 Marina to be impacted by noise from equipment operation and dewatering/ treatment activities. All of these potential impacts were analyzed and found to be less than significant. Therefore, the proposed project would	Although construction noise impacts are not expected to exceed the construction noise thresholds established by either the City of San Diego or City of National City, the following precautionary measures are proposed to ensure that construction noise impacts remain at a less than significant level. **4.4.1:** The contractor shall ensure, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) and City of San Diego Noise Control Officer shall verify, that treatment and haul activity, except that performed within the active shipyards' work areas, in the City of San Diego is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in section 21.04 of the San Diego Municipal Code, with the exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive,	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	result in a temporary increase in noise above existing ambient levels; however, this impact is less than significant because the increased noise levels would not exceed local standards.	or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator in conformance with San Diego Municipal Code section 59.5.0404. **4.4.2:** The contractor shall ensure, and the National City Noise Control Officer and California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that treatment and haul activity, except that performed within the active shipyards' work areas, in National City is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on weekends or holidays as specified in section 12.10.160 of the City of National City Municipal Code. **4.4.3:** The contractor shall implement, and the California Regional Water	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Quality Control Board, San Diego Region (San Diego Water Board) shall verify, the following for the duration of project implementation (dredging, treatment, and loading) in order to reduce potential construction noise impacts on nearby sensitive receptors: 1. All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers consistent with manufacturers' standards. 2. All stationary construction equipment shall be placed so that emitted noise is directed away from sensitive receptors nearest the project site. 3. All equipment staging shall be located to create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site.	
For a project located within an airport land use plan or,	The project is not located in an area exposed to high aircraft noise levels.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
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.			
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.	The proposed project is not located within the vicinity of a private airstrip.	No mitigation is required.	Less than significant
Cumulative Noise Impacts	Noise effects from construction activities from related port projects would not impact the sensitive receptors identified for the proposed project because of their distance from the proposed project area.	No mitigation is required.	Less than significant
BIOLOGICAL RESOURCES			
Have a substantial adverse effect, either directly or	The proposed project has the potential to impact the following special-status	**4.5.1:** A pre-construction eelgrass habitat mapping survey for the Shipyard	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
indirectly through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or the CDFG or USFWS.	species: • California halibut • Coastal Pelagic Fisheries Management Plan (FMP) Species - northern anchovy • Pacific Groundfish FMP species • Sea turtles • California least tern • Elegant tern, Black skimmer • California brown pelican • Double-crested cormorant • Brant • Marine mammals, if present	Sediment Site shall be completed by the responsible parties within 120 days of the proposed start dates of each project phase in accordance with the Southern California Eelgrass Mitigation Policy (SCEMP) (National Marine Fisheries Service [NMFS], 1991 as amended) to document the amount of eelgrass that will likely be affected by dredging activity. The results of these surveys shall be integrated into a Final Eelgrass Mitigation Plan prepared by the responsible parties for the project and used to calculate the amount of eelgrass to be mitigated. The Final Eelgrass Mitigation Plan shall be subject to approval by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) and NMFS, and shall include the following elements: • A detailed map of the area including distribution, density and relationship to depth contours of any eelgrass	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		beds likely to be impacted by project construction. • The identification of mitigation site factors such as distance from project, depth, sediment type, distance from ocean connection, water quality, and currents should be considered in evaluating potential sites. • Techniques for the construction and planting of the eelgrass mitigation site consistent with the best available technology at the time of the project. • Proposed mitigation timing schedule. • Proposed mitigation monitoring activities. A post-dredging project eelgrass survey shall be completed by the responsible parties within 30 days of the completion of each dredging episode in accordance with the SCEMP and shall be submitted	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		to the NMFS, United States Fish and Wildlife Service (U.S. FWS), California Department of Fish and Game (CDFG), and the Executive Director of the California Coastal Commission (CCC), as well as the San Diego Water Board. Criteria for determination of transplant success shall be based upon a comparison of vegetation coverage (area) and density (turions[1] per square meter) between the project adjusted impact area (original impact area multiplied by 1.2 or the amount of eelgrass habitat to be successfully mitigated at the end of 5 years) and the mitigation site(s). The extent of vegetated cover is defined as that area where eelgrass is present and where gaps in coverage are less than 1 meter between individual turion clusters. Density of shoots is defined by the number of turions per area present in	

[1] A turion is a specialized overwintering bud produced by aquatic herbs.

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		representative samples within the original impact area, control or transplant bed. Specific criteria are as follows: • The mitigation site shall achieve a minimum of 70 percent area of eelgrass and 30 percent density as compared to the adjusted project impact area after the first year. • The mitigation site shall achieve a minimum of 85 percent area of eelgrass and 70 percent density as compared to the adjusted project impact area after the second year. • The mitigation site shall achieve a sustained 100 percent area of eelgrass bed and at least 85 percent density as compared to the adjusted project impact area for the third, fourth, and fifth years. The amount to be transplanted shall be	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		based upon the guidelines in the SCEMP. If remedial transplants at the project site are unsuccessful, then eelgrass mitigation shall be pursued at the secondary eelgrass transplant location. The San Diego Water Board shall verify implementation of this mitigation measure. **4.5.2:** In order to protect sea turtles that could potentially forage within and among eelgrass beds identified at or near the project site, the project marine biologist shall mark the positions of eelgrass beds with buoys prior to the initiation of any construction to minimize damage to turtles foraging within eelgrass beds outside the construction zone. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that buoys have been properly placed. **4.5.3:** The project marine biologist shall	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		meet with the construction crews prior to dredging as well as periodically throughout the project to review pre-dredge survey areas of eelgrass beds to avoid those located adjacent to the project site and to review proper construction techniques. A training log shall be maintained by the project marine biologist and shall be submitted monthly to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), who shall verify implementation of this measure. **4.5.4:** The contractor shall ensure that throughout the duration of dredge and clean sand cover placement activities, project-related barges and work vessels operating in areas where eelgrass beds exist shall be operated in a manner to ensure that eelgrass beds are not impacted through grounding, propeller damage, or other activities that may	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		disturb the seafloor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels. The project marine biologist shall periodically confirm that these measures are implemented and shall submit a monthly monitoring report to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.5.5:** The contractor shall ensure that throughout the duration of dredge and clean sand cover placement activities, barges and work vessels shall be operated in a manner to ensure that sea turtles and marine mammals are not injured or harassed through excessive vessel speed or propeller damage. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels. The project marine biologist shall periodically confirm that these measures	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		are implemented and shall submit a monthly monitoring report to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). **4.5.6:** The contractor shall ensure that construction crews and work vessel crews are briefed daily on the potential for sea turtles and marine mammals to be present and provided with identification characteristics of sea turtles, seals, sea lions, and dolphin. The project marine biologist shall periodically confirm that this measure is implemented and include verification in a monthly monitoring report. **4.5.7:** The contractor shall ensure that all construction activity be temporarily stopped if a sea turtle or marine mammal is sighted within 100 meters of the construction zone until the sea turtle or marine mammal is safely outside the	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		outer perimeter of project activities. The biological monitor, who will be on site periodically during dredging activities, shall have the authority to halt construction operation and shall determine when construction operations can proceed. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify implementation of this mitigation measure. **4.5.8:** The biological monitor shall prepare an incident report of any green sea turtle or marine mammal activity in the project area and shall inform the contractor to have his/her crews be aware of the potential for additional sightings. The report shall be provided within 24 hours to the California Department of Fish and Game (CDFG) and National Marine Fisheries Service (NMFS). In the event a sea turtle, pinniped, or cetacean is injured or killed as consequence of a collision, the vessel	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		operator and the appointed project safety personnel shall be required to immediately notify the NMFS (Southwest Division) and shall submit a written, follow-up report within 24 hours of the incident. Any injured sea turtle or marine mammal shall be transported to an agency-approved treatment facility. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify implementation of this mitigation measure. **4.5.9:** A qualified biologist familiar with the California least tern and other special-status seabirds and waterfowl shall be retained and be on site to assess the roosting and foraging behavior of special-status seabirds and waterfowl at the Shipyard Sediment Site and selected staging area(s) immediately prior to and during the initial start-up phase of dredging and clean sand cover	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		placement activities. Once it has been determined that activities are not adversely affecting seabirds and waterfowl, the biologist shall not be required to be on site continuously; however, monitoring shall be performed at least once per week (or more often if required by the resource agencies) to adequately assess whether substantial adverse impacts to special-status seabirds and waterfowl are resulting from project activities (e.g., disrupting nesting or foraging activities, harassing roosting birds). The biologist shall be present during either of the selected dredge scheduling options. In the event of an imminent threat to California least tern and/or other special-status species, the monitor shall immediately contact the contractor's construction manager. In the event the construction manager/ contractor is not available, the monitor shall have the authority to redirect or halt construction activities if determined to be necessary. The California	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify implementation of this mitigation measure. **4.5.10:** If Staging Area 5 is selected, prior to initiation of dredging and during final design, the contractor shall endeavor to restrict dewatering and treatment activities to within the western and northern portions of the staging area to the extent feasible. To the extent practicable, activities shall be conducted in locations where existing buildings obstruct sensitive habitat areas from noise sources. The staging area layout shall be submitted to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) (and to the resource agencies, if required) for review and approval. **4.5.11:** If Staging Area 5 is selected, the California Department of Fish and	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Game (CDFG) shall be notified not less than 30 days in advance and shall be given the opportunity to provide recommended measures to minimize impacts from increased noise and human activity to species in the Sweetwater Marsh Unit of the San Diego Bay National Wildlife Refuge (NWR). All agency-recommended measures (or agency-approved substitute measures, if recommended measures are infeasible) shall be implemented throughout the duration of project activities in Staging Area 5. The biological monitor shall inspect the site at least every 2 weeks during project activities that are conducted during the nesting season (conservatively February 1 through August 31) and shall report monthly to the San Diego Water Board and CDFG.	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
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 CDFG or USFWS.	Potential Staging Area 5 is adjacent to the Sweetwater Marsh Unit of the San Diego Bay National Wildlife Refuge (NWR), which provides habitat for a variety of special-status species. Off-site indirect effects associated with the proposed project that could affect areas within the NWR would be limited to potential increases in noise and human activity at Potential Staging Area 5.	See Mitigation Measures 4.5.10 and 4.5.11, above.	Less than significant
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 known federally protected wetlands exist within the project site.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
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 impede the use of native wildlife nursery sites.	Patches and beds of eelgrass are present within the project area and would be adversely affected by dredging activities through direct removal.	See Mitigation Measure 4.5.1, above.	Less than significant
	Dredging and placement of clean sand cover will result in the loss of the majority of benthic infauna within the remedial footprint. The dredged areas and clean fill sand are expected to be recolonized by a more diverse assemblage of benthic invertebrates compared to existing conditions, and benthic biomass (i.e., productivity) will be higher, which would benefit the benthic foraging fishes of the Bay.	No mitigation is required.	Less than significant
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	The proposed project would not conflict with any local policies or ordinances protecting biological resources.	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan?	The proposed project would not conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.	No mitigation is required.	Less than significant
Cumulative Biological Resources Impacts	The project is relatively small in area compared to the Bay overall, and dredging activities occur throughout the Bay periodically under existing conditions; therefore, it is not expected to substantially change the ecosystem composition (if anything, removal of toxic sediments is intended to improve ecological function) or result in permanent habitat loss.	No additional mitigation is required.	Less than significant
AIR QUALITY			
Conflict with or obstruct implementation of the applicable air quality plan	The Regional Air Quality Strategy (RAQS) is based on local General Plans; projects that are deemed consistent with the General Plan are found to be consistent with the air	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	quality plan. The proposed project is a short-term remedial dredge-and-haul project that would not result in long-term changes to existing or planned land uses and would not conflict with the City of San Diego or National City General Plans.		
Violate any air quality standard or contribute substantially to an existing or projected air quality violation	Emissions of particulate matter (PM_{10} and $PM_{2.5}$) generated during dredging and dewatering activities will be relatively small and will not exceed the thresholds of significance for particulate matter. Therefore, construction activities associated with the project would result in less than significant adverse impacts related to PM_{10}, $PM_{2.5}$, and fugitive dust.	No mitigation is required.	Less than significant
	A Health Risk Assessment (HRA) was performed for the potential exposure to emissions from project-related haul truck traffic. The HRA results indicate an exposure to risk that would not exceed the San Diego Air Pollution	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	Control District (APCD) criterion for cancer nor chronic or acute health risks.		
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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)	Construction equipment/vehicle emissions during the dredging and drying of the sediment would result in nitrogen oxides (NO_X) emissions that would exceed the City-established daily emissions threshold for that pollutant. While adherence to San Diego APCD rules and regulations (Mitigation Measures 4.6.1 through 4.6.7) and implementation of mitigation measures (Mitigation Measures 4.6.8 through 4.6.14) would reduce this impact, impacts would remain significant and adverse.	**4.6.1:** The contractor shall be required by contract specifications to minimize obstruction of through traffic lanes adjacent to the site. If necessary, a flag person shall be retained by the construction supervisor to maintain safety adjacent to existing roadways. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation ofdredging. The San Diego Water Board shall verify implementation of this measure. **4.6.2:** During dredging and dewatering activities, the contractor shall support and encourage ridesharing and transit incentives for the construction crew. These specifications shall be included in	Significant and unavoidable

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		the proposed project's construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. **4.6.3:** During dredging and dewatering activities, the contractor shall ensure that on-site vehicle speed shall be limited to 15 miles per hour (mph). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.4:** During dredging and dewatering activities, the contractor shall ensure that all on-site roads are paved. Contract specifications shall be included	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.5:** During dredging and dewatering activities, the contractor shall adhere to San Diego Air Pollution Control District (APCD) Rule 55 to ensure that all material excavated or graded is sufficiently watered to prevent airborne dust from being visible beyond the property line. Watering with complete coverage, and/or surfactants shall be applied to stockpiles of dirt, inactive construction areas, and construction roads if and as necessary. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.6:** Should the dredge material dry sufficiently to be considered dusty, the contractor shall ensure that all earthmoving activities cease during periods of high winds (i.e., greater than 25 mph averaged over 1 hour). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.7:** During dredging and dewatering activities, the contractor shall ensure	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		that all material transported off site is either sufficiently wet or securely covered to prevent excessive amounts of dust. In addition, per San Diego Air Pollution Control District (APCD) Rule 55, the construction contractor shall ensure that visible roadway dust from track-out/carry-out be minimized. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.8:** The contractor shall be required by contract specifications to ensure that all diesel-powered equipment used are retrofitted with after-treatment products (e.g., engine catalysts) to the extent that they are readily available in the San	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Diego Air Basin (SDAB). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.9:** The contractor shall be required by contract specifications to ensure that all heavy-duty diesel-powered equipment operating and refueling at the project site use low oxides of nitrogen (NO_X) diesel fuel to the extent that it is readily available and cost effective (up to 125 percent of the cost of California Air Resources Board [ARB] diesel) in the San Diego Air Basin (SDAB). (This does not apply to diesel-powered trucks traveling to and from the project site.) Contract specifications shall be included in the proposed project construction	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.10:** The contractor shall be required by contract specifications to ensure that alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) are utilized to the extent that the equipment is readily available and cost effective in the San Diego Air Basin (SDAB). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		implementation of this measure. **4.6.11:** The contractor shall be required by contract specifications to ensure that construction equipment engines are maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.12:** The contractor shall be required by contract specifications to ensure that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, is turned off when not in use for more than 5 minutes. Contract specifications shall	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure. **4.6.13:** The contractor shall be required by contract specifications to ensure that construction operations rely on the electricity infrastructure surrounding the construction site rather than electrical generators powered by internal combustion engines to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		implementation of this measure. **4.6.14:** The contractor shall utilize alternative-fueled construction equipment to the maximum extent feasible. All diesel-powered construction equipment shall meet or exceed Tier III standards, or shall be equipped with ARB-verified oxidation catalysts and diesel particulate filter emission controls, using the greatest control efficiency for the specific category of equipment where feasible. The construction contractor shall demonstrate that these verified/certified technologies are available to be used at the time of project dredging and dewatering activities. These specifications shall be included in the proposed project's construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the the initiation of dredging. The San Diego	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
		Water Board shall verify implementation of this measure.	
Expose sensitive receptors to substantial pollutant concentrations	No substantial increase in carbon monoxide (CO) contributions would occur in the project vicinity, and no CO hot spots are expected as a result of the project	No mitigation is required.	Less than significant
Create objectionable odors affecting a substantial number of people	The heavy-duty construction equipment used in the project area during construction would result in odor emissions. However, these odors would be limited to the time that construction equipment is operating during the construction period for the project. Adherence to the mitigation measures identified for equipment would reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment.	See above.	Less than significant
	While the dredge material is drying, the decomposition of organic matter as it is exposed to air may generate unpleasant	**4.6.15.** Should the dredge material be odorous due to the decomposition of organic material, the contractor shall	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	odors.	apply a mixture of Simple Green and water (a ratio of 10:1), or similar solution, to the dredge material to accelerate the decomposition process and reduce odor impacts. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.	

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
Cumulative Air Quality Impacts	San Diego Unified Port District (Port District) projects could be under construction at the same time as the proposed project. Should multiple projects be underway at the same time, it is anticipated that the additional NO_X emissions could result in significant cumulative air quality impacts. Construction activities for the Shipyard Sediment Remediation Project would also contribute to construction-related adverse cumulative air quality impacts because the San Diego Air Basin (SDAB) is presently in nonattainment for ozone (O_3), and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3.	See above.	Significant and unavoidable
CLIMATE CHANGE AND GHG EMISSIONS			
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	The proposed project will result in short-term emissions associated with the use of construction equipment. There will be no ongoing increase in contribution to global warming because	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	there are no permanent on-site stationary sources, and there is no ongoing increase in the number of vehicular trips coming to and from the project site. Therefore, the proposed project's contribution to global climate change (GCC) in the form of greenhouse gas (GHG) emissions is less than significant.		
Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs	The proposed project would not conflict with the potential measures to bring California to the emission reduction targets based on California Climate Action Team (CAT) strategies, the City of San Diego Climate Action Plan, and the City of National City Draft Climate Action Plan.	No mitigation is required.	Less than significant
Cumulative Climate Change or GHG Emission Impacts	The proposed project will result in short-term emissions associated with the use of construction equipment for dredging treatment and haul activities. There will be no ongoing increase in contribution to global warming because there are no permanent on-site stationary sources and there is no	No mitigation is required.	Less than significant

Table 1.A: Summary of Project-Specific Impacts, Mitigation Measures, and Level of Significance

Threshold of Significance	Potential Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	ongoing increase in the number of vehicular trips coming to and from the project site. Therefore, the proposed project's contribution to GCC in the form of GHG emissions is less than cumulatively significant.		

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2.0 INTRODUCTION

This Draft Program Environmental Impact Report (PEIR) has been prepared to evaluate specific environmental impacts associated with the proposed Shipyard Sediment Remediation Project in the County of San Diego (County) and City of San Diego (City).

The California Regional Water Quality Control Board, San Diego Region (hereinafter the San Diego Water Board) is the Lead Agency with authority to prepare this Draft PEIR and, after completion of the public comment/response process, is the Certifying Agency for the Final PEIR. This Draft PEIR is intended to serve as an informational document to be considered by the San Diego Water Board and the Responsible and Trustee Agencies during deliberations on the proposed project. The project approvals associated with the proposed project are described in Chapter 3.0, Project Description.

An Environmental Impact Report (EIR) is an informational document intended to inform decision-makers and the general public of the potential significant environmental impacts of a project. An EIR also identifies possible ways to reduce or avoid significant impacts and describes reasonable alternatives to the project. The California Environmental Quality Act (CEQA) Lead Agency has the authority to approve or deny the proposed project (see Chapter 3.0 for a description of the project). The San Diego Water Board, as the CEQA Lead Agency, will consider the information in this PEIR along with other information before taking any action on the project. An evaluation of potential project alternatives is included in this PEIR, including a No Project Alternative.

2.1 PURPOSE AND INTENDED USES OF THE PROGRAM ENVIRONMENTAL IMPACT REPORT

The purpose of this Draft PEIR is to inform decision-makers and the general public of any significant adverse environmental effects associated with the proposed actions and to identify appropriate and feasible mitigation measures and alternatives that may be adopted to minimize or eliminate any significant project or cumulative effects. This Draft PEIR also includes an evaluation of reasonable alternatives to the proposed project, including: Alternative 1 – No Project, Alternative 2 – Confined Aquatic Disposal (CAD), Alternative 3 – Convair Lagoon Confined Disposal Facility (CDF), and Alternative 4 – Nearshore CDF with Beneficial Use of Sediments. An off-site alternative is not analyzed because the project is location-specific, as the primary objective of the project is to remove the contaminated sediments from the identified remedial footprint, consistent with the Tentative Cleanup and Abatement Order (CAO).

This Draft PEIR has been prepared according to CEQA requirements to evaluate the potential environmental impacts associated with the construction and operation/use of the proposed project. The Draft PEIR also examines various alternatives to the proposed project and describes potential impacts relating to a variety of environmental issues and methods by which these impacts can be mitigated or avoided. The Draft PEIR includes mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts. This PEIR has been prepared in accordance with CEQA Public Resources Code (PRC) section 21000 et seq. and the CEQA Guidelines (California Code of Regulations [CCR] Title 14, Chapter 3).

The objective of the Draft PEIR is to inform decision-makers, the public, and other interested parties of the potential environmental consequences that may be associated with the approval and implementation of the proposed project. According to CEQA Guidelines CCR section 15002, the basic purposes of CEQA are to:

- Inform government decision-makers and the public about the potential significant environmental effects of proposed activities;
- Identify ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes to projects through the use of alternatives or mitigation measures when the governing agency finds the changes to be feasible; and
- 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.

This Draft PEIR will be circulated for public comment for a period of 45 days.

2.1.1 Authority

Upon preparation of an Initial Study (IS) for the Shipyard Sediment Remediation Project, the San Diego Water Board determined that a PEIR should be prepared to focus on significant effects of the proposed project and to satisfy the requirements of CEQA. Consistent with CEQA Guidelines section 15168, the San Diego Water Board is proceeding with the PEIR to address the environmental impacts of the proposed sediment removal project as described in the Tentative CAO.

This PEIR has been prepared in accordance with CEQA (PRC section 21000 et seq.) and the CEQA Guidelines (CCR Title 14, section 15000 et seq.). The CEQA Guidelines stipulate that an EIR must be prepared for any project that may have a significant impact on the environment. The proposal under consideration is a "project" as defined by section 15180 of the CEQA Guidelines.

2.1.2 Background

The San Diego Water Board has been working on the development and issuance of the Tentative CAO for discharges of metals and other pollutant wastes to San Diego Bay marine sediment and waters at the Shipyard Sediment Site for approximately 10 years. The San Diego Water Board has identified elevated levels of pollutants in the San Diego Bay bottom sediments adjacent to National Steel and Shipbuilding Company (NASSCO) and BAE Systems shipyards. The concentrations of these pollutants cause or threaten to cause a condition of pollution that harms aquatic life and beneficial uses designated for San Diego Bay. The concentrations of these pollutants also present aquatic-dependent wildlife and human health risks from exposure to pollutants through the food chain attributable to the contaminated sediment.

At the February 21, 2001, San Diego Water Board meeting, the San Diego Water Board adopted Resolution Nos. 2001-02 and 2001-03. These resolutions directed the Executive Officer to issue Water Code section 13267 letters to NASSCO and Southwest Marine (predecessor to BAE Systems) requiring each shipyard to submit the results of a site-specific study to develop sediment cleanup levels and identify sediment cleanup alternatives. Two phases of field work were conducted in 2001 and 2002. The results are provided in the report *NASSCO and Southwest Marine Detailed Sediment Investigation*, dated September 2003.

On April 29, 2005, the San Diego Water Board circulated for public review and comment a tentative version of the cleanup and abatement order (Tentative CAO No. R9-2005-0126). Based on the San Diego Water Board's consideration of public comments submitted on the April 29, 2005, Draft CAO and other information, a revised Tentative CAO No. R9-2005-0126 and a supporting Draft Technical Report (DTR), dated April 4, 2008, were prepared and released for public review.

On June 9, 2008, Mr. David King, San Diego Water Board Member and Presiding Officer of the prehearing proceedings for the Tentative CAO, referred the proceedings to confidential mediation. The mediation parties, which included the San Diego Water Board Cleanup Team (Cleanup Team) and other parties to whom the Tentative CAO is directed, through the course of mediation, reached agreement on appropriate cleanup levels, the remedial design, remediation and post-remediation monitoring requirements, and a remedial action implementation schedule. Those agreements are contained in Tentative CAO No. R9-2010-0002 and the supporting DTR, which were released for public review on December 22, 2009.

On September 15, 2010, the San Diego Water Board released a revised version of the Tentative CAO and supporting DTR. This version updates and clarifies the Tentative CAO and DTR, which were previously released on December 22, 2009. Copies of Tentative CAO No. R9-2011-0001 and supporting DTR are posted on the San Diego Water Board website at http://www.waterboards.ca.gov/sandiego.

The September 15, 2010 release of a Tentative CAO and DTR is not intended to fulfill the San Diego Water Board's formal procedures for adopting a CAO in this matter under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). A public hearing schedule and deadline for public comments on a finalized Tentative CAO and DTR will be established in a future ruling by the San Diego Water Board's Presiding Officer in this matter.

On April 12, 2011, the San Diego Water Board released the "Notice of Opportunity for Designated Parties to Submit Comments, Evidence and Legal Argument and for Interested Persons to Submit Non-Evidentiary Comments" on the Tentative CAO and supporting DTR. The San Diego Water Board will also provide an opportunity for all parties and interested persons to provide comments on the Draft PEIR. Consideration of testimony and written submittals by parties and interested persons may result in revisions to the Tentative CAO and the supporting DTR as well as the Final PEIR. Thus the finalized version of the Tentative CAO that is ultimately considered for adoption by the San Diego Water Board at the conclusion of the proceedings may differ from the current September 15, 2010, version of the Tentative CAO.

2.1.3 Level of Review

The Draft PEIR provides a "program-level" review of the types of environmental impacts that may be associated with implementation of the sediment removal project. Section 15168(a) of the CEQA Guidelines defines a PEIR as an EIR prepared for a series of actions that can be characterized as one large project and are related:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

Collectively, the proposed sediment removal activity and the selection of a dewatering/ staging area are related geographically because the staging area must be in proximity to the sediment removal activity, they are logical parts in the chain of contemplated actions because they all function to support the implementation of the Tentative CAO, and they are connected under the same rules and regulatory authority because they will all be implemented and operated under the authority of the San Diego Water Board in a manner that complies with the Final CAO, once approved.

The San Diego Water Board's commitment to conduct additional CEQA review in the future is consistent with the requirements of CEQA that a Lead Agency prepare an EIR for a project

"'at the earliest possible stage." As such, CEQA permits a Lead Agency to use "tiering" to "defer analysis of certain details of later phases of long-term linked or complex projects until those phases are up for approval" (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* [2008] 40 Cal.4th 412, 431–432). In particular, tiering is appropriate "when it helps a public agency to focus upon the issues ripe for decision at each level of environmental review and in order to exclude duplicative analysis of environmental effects examined in previous environmental impact reports" (*in re Bay-Delta* [2008)]43 Cal.4th 1143, 1170).

The PEIR identifies the anticipated effects of the sediment removal project. The PEIR also identifies five alternative sites within which the dewatering and treatment of dredge material could occur. This PEIR provides sufficient information to the appropriate level of detail to permit "reasonable and meaningful environmental review" of the effects of the project so that the San Diego Water Board may make decisions regarding approval of the proposed sediment removal project and selection of one or more of the potential staging area sites. This PEIR, once certified, may be used as an environmental clearance baseline against which to evaluate future site-specific implementation approvals and permits for implementation of the proposed project.

2.1.4 Intended Uses of the PEIR

This PEIR constitutes and is designated as a "program environmental impact report" for purposes of CEQA PRC section 21090(a). Future decisions and implementing actions following certification of the PEIR and approval of the project will be subject to subsequent environmental review pursuant to CEQA.

This PEIR may be used by the San Diego Water Board, as Lead Agency, and other state and local agencies in considering discretionary actions relative to the proposed project, including but not limited to the agencies listed in Chapter 3.0, Table 3-1, that may use the PEIR for their respective approvals. However, before the PEIR is used for any future discretionary approval, it will be closely examined by the responsible agency to determine whether its analysis adequately addresses the environmental issues raised by the proposed approval. If it does not, further environmental analysis may be required by CEQA for those approvals.

2.2 NOTICE OF PREPARATION/PUBLIC SCOPING MEETING

The San Diego Water Board has complied with CEQA Guidelines sections 15063 and 15082 by preparing and issuing a Notice of Preparation (NOP) of a Draft PEIR. The NOP included a description of proposed activities that are within the scope of the PEIR. The NOP also included an IS Checklist. The NOP was circulated to responsible agencies and interested groups as required by CEQA**.** The State of California Clearinghouse (SCH) issued a project number for the Draft PEIR (SCH 2009111098).

The San Diego Water Board released the NOP for public review on November 30, 2009, for a 30-day review period. The San Diego Water Board extended the review period to Monday, March 22, 2010. A public scoping meeting was held on January 21, 2010. The IS and the NOP comments were used to establish the scope of the issues addressed in this PEIR.

Appendix A contains copies of the NOP and the NOP comment letters that were received. Written responses to the NOP were received from the following:

- Department of Toxic Substances Control (DTSC)
- California State Lands Commission
- Native American Heritage Commission (NAHC)
- BAE Systems (DLA Piper)
- Sierra Club

The IS and Scoping Meeting Notice were based on the draft version of the Tentative CAO published on December 22, 2009 (No. R9-2010-0002). The Tentative CAO was since updated, and this PEIR is based on the September 15, 2010 version (No. R9-2011-0001). Both versions are available at the San Diego Water Board websites, at http://www.waterboards.ca.gov/sandiego/water_issues/programs/shipyards_sediment/2005_0126cut2.shtml. The differences between the 2009 and 2010 Tentative CAOs are highlighted in a redline version of the CAO, which is also posted at the above-mentioned website.

2.3 AREAS OF CONTROVERSY

The purpose of the CEQA scoping process is to present the proposed project and to solicit input from interested individuals regarding environmental issues that should be addressed in this Draft PEIR. Major issues and concerns raised at the scoping meeting held on January 21, 2010, and comments submitted in writing during the NOP process included: (1) concerns regarding disproportionate impacts to low-income and/or minority communities (environmental justice); (2) release of contaminants during the cleanup activities and the effects to marine biological resources; (3) additional information regarding a confined aquatic disposal alternative; and (4) question about the need for an EIR for a CAO.

The Draft PEIR addresses each of these areas of concern in detail. Environmental justice is addressed in Appendix H and in each of the topical sections included in Chapter 4.0. The potential for release of contaminants during the cleanup activities is addressed in Sections 4.2, Hydrology and Water Quality; Section 4.3, Hazards and Hazardous Materials; and Section 4.5, Biological Resources. Additional information regarding a confined aquatic disposal alternative is included in Chapter 5.0 of this PEIR. Although the IS/NOP had

anticipated that the PEIR would not further evaluate a CAD alternative, one has been included (Alternative 2) and evaluated in this Draft PEIR in response to this comment on the IS/NOP. Although one of the shipyards questioned the need for an EIR for the Tentative CAO, the San Diego Water Board has determined that the proposal under consideration is a "project" as defined by CEQA Guidelines section 15180, that the undertaking may have a significant impact on the environment, and that that an EIR must be prepared. Specifically, in Resolution No. R9-2010-0115 adopted on September 8, 2010, the San Diego Water Board found that because the Tentative CAO presents unusual circumstances and there is a reasonable possibility of s significant effect on the environment due to the unusual circumstances, the Tentative CAO is not exempt from CEQA and that an EIR analyzing the potential environmental effects of the Tentative CAO should be prepared.[1]

2.4 ISSUES TO BE RESOLVED

The San Diego Water Board will review the Draft PEIR, comments submitted on the Draft PEIR, and the Response to Comments document. If the PEIR is certified, the San Diego Water Board may choose to approve the proposed project or one of the alternatives. If the San Diego Water Board approves the proposed project, a determination may be made at that time or in the future with regard to the most appropriate staging area site for the sediment removal.

2.5 EFFECTS FOUND NOT TO BE SIGNIFICANT

As required by CEQA Guidelines section 15128, this PEIR identifies the potential effects of the proposed project that were determined to be significant and adverse. The proposed project would not result in adverse impacts related to the following: Aesthetics, Agricultural Resources, Cultural Resources, Population and Housing, Land Use and Planning, Mineral Resources, Public Services and Utilities, and Recreation. These issues are discussed in the IS along with reasons they were determined not to be significant. For further information and additional discussion, please refer to the IS and NOP in Appendix A of this PEIR.

2.6 FORMAT OF THE PEIR

Pursuant to CEQA Guidelines section 15120(c), this PEIR contains the information and analysis required by CEQA Guidelines sections 15122 through 15131. Each of the required elements is covered in one of the sections described below.

[1] Draft Technical Report for Tentative Cleanup and Abatement Order No. R9-2011-0001, Finding 37, September 15, 2010.

2.6.1 Chapter 1.0: Executive Summary

Chapter 1.0 contains the Executive Summary of the PEIR document and lists all significant project impacts, mitigation measures that have been recommended to reduce any significant impacts of the proposed project, and the level of significance of each impact following mitigation. The summary is presented in a matrix (tabular) format.

2.6.2 Chapter 2.0: Introduction

Chapter 2.0 contains a discussion of the purpose and intended use of the PEIR, a background on the NOP and scoping process, and areas of controversy known to the Lead Agency, including issues raised during the scoping process. A summary discussion of effects found not to be significant and, therefore, not included in the PEIR analysis is also included in this section.

2.6.3 Chapter 3.0: Project Description

Chapter 3.0 includes a discussion of the project's geographical setting, the history of the project site, and the project's goals, objectives, characteristics, and components.

2.6.4 Chapter 4.0: Existing Environmental Setting, Environmental Analysis, Impacts, and Mitigation Measures

Chapter 4.0 includes an analysis of the project's environmental impacts. It is organized into topical sections, including Transportation and Circulation, Hydrology and Water Quality, Hazards and Hazardous Materials, Noise, Biological Resources, Air Quality, and Climate Change and Greenhouse Gas Emissions. The environmental setting discussions describe the "existing conditions" of the environment on the project site and in the vicinity of the site as they pertain to the environmental issues being analyzed (CEQA Guidelines section 15125).

The project impact discussions identify and focus on the significant environmental effects of the proposed project. The direct and indirect significant effects of the project on the environment are identified and described, giving due consideration to both the short-term and long-term effects as necessary (CEQA Guidelines section 15126.2(a)). Cumulative impacts are based on other known proposed projects in the surrounding area.

The discussions of mitigation measures identify and describe feasible measures that could minimize or lessen significant adverse impacts for each significant environmental effect identified in the PEIR (CEQA Guidelines section 15126(c)). The level of significance after mitigation is reported in each section. Unavoidable adverse effects are identified where mitigation is not expected to reduce the effects to less than significant levels.

2.6.5 Chapter 5.0: Alternatives

In accordance with CEQA, the alternatives discussion in Section 5.0 describes a reasonable range of alternatives that could feasibly attain the basic objectives of the project and that are capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance. Alternatives analyzed in Section 5.0 include: Alternative 1 – No Project, Alternative 2 – CAD, Alternative 3 – Convair Lagoon CDF, and Alternative 4 – Nearshore CDF with Beneficial Use of Sediments.

2.6.6 Chapter 6.0: Long-Term Implications of the Project

Section 6.0 includes CEQA-mandated discussions required by CEQA Guidelines section 15126 regarding: (a) significant irreversible environmental changes that would result from implementation of the proposed project, and (b) growth-inducing impacts of the proposed project.

2.6.7 Chapter 7.0: Mitigation Monitoring and Reporting Program

A Mitigation Monitoring and Reporting Program (MMRP) has been prepared to comply with the requirements of State law (CEQA PRC section 21081.6). State law requires the adoption of an MMRP when mitigation measures are required to avoid significant impacts. The MMRP is intended to ensure compliance during implementation of the program. An MMRP will be adopted by the San Diego Water Board concurrent with certification of the Final PEIR for the proposed project. Section 7.0 provides a list of all proposed project mitigation measures, defines the party responsible for implementation, and identifies the timing for implementation of each mitigation measure.

2.6.8 Chapters 8.0 and 9.0

Chapter 8.0 lists the references used by the authors. Chapter 9.0 contains a list of the Draft PEIR preparers, technical report authors, and other experts included in preparation of the Draft PEIR.

2.6.9 Appendices

Various technical reports have been prepared to assess specific issues that may result from the construction and operation of the proposed project. Relevant information from these technical reports has been incorporated into the Draft PEIR. The technical reports and other information included as appendices to this EIR include:

- Appendix A: Initial Study, NOP, and NOP Comments
- Appendix B: Traffic Impact Analysis
- Appendix C: Water Quality Technical Report
- Appendix D: Hazardous and Hazardous Materials Technical Report
- Appendix E: Noise Impact Analysis
- Appendix F: Marine Biological Resources Assessment Technical Report
- Appendix G: Air Quality Analysis
- Appendix H: Environmental Justice Analysis
- Appendix I: Air Quality Technical Report for the Shipyard Sediment Site Project – Convair Lagoon Alternative
- Appendix J: Shipyard Sediment Alternatives Analysis Convair Lagoon Confined Disposal Facility Alternative Marine Biological Resources Technical Report
- Appendix K: Convair Lagoon Architectural Resources Evaluation and Assessment of Effects
- Appendix L: Geology and Soils Evaluation Shipyard Sediment Alternative Analysis Convair Lagoon
- Appendix M: Greenhouse Gas Calculations
- Appendix N: Hazards and Hazardous Materials Technical Study Shipyard Sediment Alternative Analysis Convair Lagoon
- Appendix O: Water Quality Technical Study Shipyard Sediment Alternative Analysis Convair Lagoon

2.7 CEQA ALTERNATIVES

CEQA Guidelines section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly attain the basic objectives of the project and evaluate the comparative merits of the alternatives. This PEIR identifies and describes several alternatives to the proposed project and assesses their environmental impacts. The alternatives analysis is included in Chapter 5.0, Alternatives.

As required by CEQA, this PEIR analyzes a range of alternatives that eliminate any significant adverse environmental effects of the proposed project or reduce those impacts to a level of insignificance. It also assesses whether each alternative would impede or achieve the project's objectives. The merits of each alternative have been evaluated and compared to the proposed project, and an "environmentally superior" alternative has been identified.

2.8 PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

This Draft PEIR has been distributed to affected public agencies and interested parties. Additionally, in accordance with CEQA PRC section 21092(b)(3), the Draft PEIR has been provided to all parties who have previously requested copies. A Notice of Completion and Availability of the Draft PEIR has been distributed as required by CEQA. During the 45-day public review period, the Draft PEIR and technical appendices are available for review at the following locations:

- California Regional Water Quality Control Board, San Diego Region
  9174 Sky Park Court, Suite 100
  San Diego, CA 92123-4353
- Logan Heights Branch Library
  567 South 28th Street
  San Diego, CA 92113-2438
  (619) 533-3968
- San Diego Water Board project website: http://www.waterboards.ca.gov/sandiego/water_issues/programs/shipyards_sediment/docs

The NOP prepared by the San Diego Water Board indicated that the proposed project may have a significant effect on the environment and that an EIR would be required to more fully evaluate potential adverse environmental impacts that may result from development of the project. As a result, this Draft PEIR has been prepared in accordance with CEQA, as amended (CEQA PRC section 21000 et seq.), and the CEQA Guidelines (CCR Title 14, section 15000 et seq.).

Questions regarding the preparation of this document and San Diego Water Board review of the project should be referred to the following person:

Craig Carlisle, Project Manager
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4353

Comments may also be emailed to: CCarlisle@waterboards.ca.gov.

After the 45-day public review period, written responses will be prepared for all the significant environmental issues raised. The Final PEIR, which includes the Draft PEIR, the public comments, and responses to the comments on the Draft EIR, will be included as part of the environmental record for consideration by the decision-makers.

2.9 INCORPORATION BY REFERENCE

CEQA PRC section 21061 and CEQA Guidelines section 15150 permit an EIR/PEIR to incorporate by reference those documents that provide information relevant to the proposed project and its environmental effects. The documents hereby incorporated by reference are listed below, and the pertinent material is summarized throughout this PEIR, where information is relevant to the analysis of impact of the proposed project. All documents incorporated by reference are available for review at the California Regional Water Quality Control Board, San Diego Region, 9174 Sky Park Court, Suite 100, San Diego, CA 92123-4353.

Documents incorporated by reference include:

California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). 2010 *Tentative Cleanup and Abatement Order No. R9-2011-0001 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA.* September 15, 2010.

California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). 2010. *Draft Technical Report for Tentative Cleanup and Abatement Order No. R9-2011-0001 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA.* September 15, 2010.

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3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

The proposed Shipyard Sediment Remediation Project (proposed project) is the dredging of sediment adjacent to shipyards in San Diego Bay; the dewatering and solidification of the dredged material (onshore or on a barge); the potential treatment of decanted water (anticipated disposal to the sanitary sewer system); and the transport of the removed material to an appropriate landfill for disposal. The purpose of the project is to implement a Tentative Cleanup and Abatement Order (CAO) issued by the California Regional Water Quality Control Board, San Diego Region (hereinafter referred to as the San Diego Water Board). The San Diego Water Board is the Lead Agency under the California Environmental Quality Act (CEQA) for the proposed project. The dredging will occur in an area of San Diego Bay defined in the Tentative CAO. The San Diego Water Board is considering the use of one or more staging sites for the dewatering and treatment of the dredge, as further described in this project description. The sediment removal footprint and optional staging sites comprise the project site for the purpose of this Program Environmental Impact Report (PEIR).

3.2 PROJECT LOCATION

The study area for the sediment removal project (also referred to as the Shipyard Sediment Site in the Draft Technical Report for Tentative CAO No. R9-2011-0001 dated September 15, 2010) is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west. The sediment removal site (also referred to as the Proposed Remedial Footprint in the Draft Technical Report for Tentative CAO No. R9-2011-0001) comprises approximately 15.2 acres that are subject to dredging and 2.3 acres that are subject to clean sand cover, primarily under piers. The project consists of marine sediments in the bottom bay waters that contain elevated levels of pollutants above San Diego Bay background conditions. This area, combined with the potential upland staging areas described below, are hereinafter collectively referred to as the "project site" (Figure 3-1, Project Location).

The removal of the marine sediments will require upland areas for dewatering, solidification, and stockpiling of the materials and potential treatment of decanted waters prior to off-site disposal. Therefore, in addition to the open waters of the Shipyard Sediment Site, five upland areas have been identified by the San Diego Water Board as potential sediment staging areas. Each of the potential staging areas has potential usable areas based on a

review of aerial photographs, which are illustrated on Figures 3-2 through 3-7 and further described below.

- **Staging Area 1:** 10th Avenue Marine Terminal and Adjacent Parking (approximately 49.66 potentially usable acres)
- **Staging Area 2:** Commercial Berthing Pier and Parking Lots Adjacent to Coronado Bridge (approximately 11.66 potentially usable acres)
- **Staging Area 3:** SDG&E Leasehold/BAE Systems Leasehold/BAE Systems and NASSCO Parking Lots (approximately 7.27 potentially usable acres)
- **Staging Area 4:** NASSCO/NASSCO Parking and Parking Lot North of Harbor Drive (approximately 3.85 potentially usable acres). Staging Area 4 is not located adjacent to the waterfront; therefore, sediment transport from the barge to the staging area would be required**.**
- **Staging Area 5:** 24th Street Marine Terminal and Adjacent Parking Lots (approximately 145.31 potentially usable acres)

The Tentative CAO notes that the specific actions to be taken by the responsible parties for the cleanup will be described in a Remedial Action Plan (RAP) that is to be prepared and submitted to the San Diego Water Board.

3.3 PROJECT SETTING AND SITE DESCRIPTION

The project site is located under the planning jurisdiction of the San Diego Unified Port District (Port District) and is identified as District 4 in the certified Port Master Plan. The Port District is a special government entity that was created in 1962 by the San Diego Unified Port District Act, California Harbors and Navigation Code, in order to manage San Diego Harbor and administer certain public lands along San Diego Bay. The Port District holds and manages natural resources as trust property on behalf of the People of the State of California, including the land occupied by NASSCO and BAE Systems. The Port Master Plan water use designation within the limits of the proposed project is Industrial–Specialized Berthing.

San Diego Bay is designated as a State Estuary under Section 1, Division 18 (commencing with section 28000) of the Public Resources Code (PRC). The San Diego Bay shoreline between Sampson Street and 28th Street is listed on the Clean Water Act (CWA) section 303(d) List of Water Quality Limited Segments for elevated levels of copper, mercury, zinc, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) in the marine sediment. These pollutants are impairing the aquatic life, aquatic-dependent wildlife, and human health beneficial uses designated for San Diego Bay. The northeast boundary of the Shipyard Sediment Site occupies this shoreline.

The principal structural components within the Shipyard Sediment Site include the concrete bulkheads, piers, and dry dock facilities associated with the two shipyard facilities. Bathymetry at the site varies substantially due to the presence of shipways, dry docks, and berths, and ranges from -2 mean lower low water (MLLW) along the bulkheads to -70 feet MLLW at the BAE Systems dry dock sump area.

The marine habitat within the sediment removal area contains both vegetated and unvegetated subtidal soft-bottom habitats, pier pilings, and bulkhead walls. The vegetated habitat species include sparse beds of eelgrass (*Zostera marina*). The entire extent of the sediment removal area shoreline is artificially stabilized and generally consists of a vertical sheet pile bulkhead and seawall. The marine habitat types include vertical bulkhead walls and dock structures, vegetated and nonvegetated soft-bottom subtidal habitats, and open water. These habitats support marine plants, invertebrates, and fish.

The five potential staging areas consist primarily of leasehold lands and associated parking areas in the immediate vicinity of the Shipyard Sediment Site. The actual usable areas within each potential staging area are comprised of open paved portions that could be used for the dewatering, solidifying, and drying of the dredged marine sediments. Staging Areas 1 through 4 are located within the City of San Diego and are designated in the City's General Plan as Mixed Use and Industrial Employment. Staging Area 5 is located approximately 3.5 miles from the shipyards and within the City of National City. It is currently designated in the City's General Plan as Industrial–Tidelands Manufacturing, and is under the jurisdiction of the Port District. National City is currently updating their General Plan; the proposed land use designation for Staging Area 5 in the updated General Plan is "San Diego Unified Port District," indicating that land uses are governed by the San Diego Port Master Plan. The currently adopted (1996) combined General Plan/zoning map identifies an overlay zone in Staging Area 5 as subject to the "Unified Port District" overlay zone, also indicating that land uses are governed by the San Diego Port Master Plan.

3.4 PROJECT BACKGROUND

The San Diego Water Board stipulates that several agencies and/or parties caused or permitted the discharge of waste to the Shipyard Sediment Site that has resulted in the accumulation of waste in the marine sediment. The contaminated marine sediment has caused conditions of contamination or nuisance in San Diego Bay that adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses. The San Diego Water Board determined that issuance of a Tentative CAO was the appropriate regulatory tool to use for correcting the impairment at the Shipyard Sediment Site.

CAOs are issued under the authority of the California Water Code (section 13304). As defined in the State Water Resources Control Board (State Water Board) Water Quality Enforcement Policy (adopted November 17, 2009):

> *CAOs may be issued to any person who has discharged or discharges waste into state waters in violation of any waste discharge requirement or other order or prohibition issued by a Regional Water Board or the State Water Board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance (discharger). The CAO requires the discharger to clean up the waste or abate the effects of the waste, or both, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.*

A CAO requires dischargers to clean up the pollution to background levels or the best water quality that is reasonable. At a minimum, cleanup levels must fully support beneficial uses, unless the Regional Water Board allows a containment zone. The Tentative CAO determined that cleaning up to a background sediment quality level at the Shipyard Sediment Site is economically infeasible. Therefore, the Tentative CAO established alternative cleanup levels for the project that are the lowest technologically and economically achievable levels as required under California Code of Regulations (CCR) Title 23 section 2550.4(e). These alternative levels are described in Section 3.6, Project Characteristics.

This PEIR addresses the cleanup project as identified in the Tentative CAO No. R9-2011-0001, dated September 15, 2010.

3.5 PROJECT GOALS AND OBJECTIVES

The primary goal of the project is to improve water quality in San Diego Bay, consistent with the provisions of the Tentative CAO. The specific project objectives are:

- Protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state by executing a shipyard sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001.
- Attain cleanup levels as included in the Tentative CAO No. R9-2011-0001 (judged to be technologically and economically feasible as defined in section 2550.4 of CCR Title 23, pursuant to Resolution No. 92-49).
- Remediate areas identified in Attachment 2 of Tentative CAO No. R9-2011-0001.
- Minimize adverse effects to aquatic life beneficial uses, including Estuarine Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR).

- Minimize adverse effects to aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE).
- Minimize adverse effects to human health beneficial uses, including Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Shellfish Harvesting (SHELL), and Commercial and Sport Fishing (COMM).
- Implement a cleanup plan that will have long-term effectiveness.
- Minimize adverse effects to the natural and built environment.
- Avoid or minimize adverse impacts to residential areas.
- Result in no long-term loss of use of shipyard and other San Diego Bay-dependent facilities.
- Minimize short-term loss of use of shipyard and other San Diego Bay-dependent facilities.

3.6 PROJECT CHARACTERISTICS

The project addressed in this PEIR is the implementation of Tentative CAO No. R9-2011-0001, which requires that remedial actions be implemented within the Shipyard Sediment Site. Remedial actions may include dredging, application of clean sand cover, and/or natural recovery depending upon a number of factors, including levels of contamination in the sediment and site accessibility. The Tentative CAO determined that dredging and disposal of sediments is the proposed remedy for approximately 15.2 acres of the site and is expected to generate approximately 143,400 cubic yards (cy) of contaminated marine sediment. In addition to the 15.2 acres targeted for dredging, approximately 2.3 acres of the project site are inaccessible or under-pier areas that will be remediated by one or more methods other than dredging, most likely by application of clean sand cover. The remedial action would be followed by a period of post-remedial monitoring. Some variation in the schedule may occur depending upon selected equipment size and numbers, the distance to the process area, potential ship traffic, and the contractual obligations of the shipyards at the time of the dredge activity.

The project includes dredging of and/or applying a clean sand cover to the contaminated soils; vessel transport to shore; dewatering, stockpiling, and testing of dredged materials at a landside staging location; and truck transport of dredge materials to the appropriate landfill disposal facility. Each of these components is further described below.

There are two scheduling options for completion of the remedial action. The first scheduling option is expected to take 2 to 2.5 years to complete. Under this option, the dredging operations would occur for 7 months of the year and would cease from April through August during the endangered California least tern breeding season.

The second option is to implement the remedial plan with continuous dredging operations, which would be expected to take approximately 12.5 months to complete. This scenario assumes that the dewatering, solidification, and stockpiling of the materials would occur simultaneously and continuously with the dredging. Also assumed under this compressed schedule option is that dredging operations could proceed year-round, including during the breeding season of the endangered California least tern (April through August).

Actual scheduling and staging of the dredge activity will reflect the contractual obligations of the shipyards at the time the dredge activity is to occur. It is anticipated that the shipyards will be able to schedule most of the contract work around the remediation efforts with few exceptions. The San Diego Water Board anticipates there may be as much as a 5- or 6-week (or approximately a 10 percent) delay or extension of the schedule to accommodate unplanned but necessary ship movements. The preferred schedule will be determined during the final design phase. However, both schedule options are included in the technical study analyses and the PEIR. Both scheduling options would be followed by a period of postremedial monitoring, as required by the Tentative CAO.

3.6.1 Dredging and Clean Sand Cover Operations

The project involves environmental dredging which, unlike navigational or construction dredging, is performed specifically for the removal of contaminated sediment while minimizing the spread of contaminants to the surrounding environment during dredging operations. The proposed project includes the dredging and removal of approximately 143,400 cy of contaminated sediment from the Shipyard Sediment Site. The cubic yard amount was identified in the Tentative CAO and includes a 1-foot over-dredge assumption.

Silt curtains and or air curtains will be placed around the dredge area, including the dredge barges. The silt curtain will consist of a geotextile fabric curtain with a floatation boom at the upper hem and ballast weights at the lower hem. The silt curtain will act as a physical barrier that will limit access to the portions of the site where the dredging operations are occurring. The silt curtain will also contain the migration of resuspended particles outside the active dredging area. A double floating silt curtain will be used; one silt curtain will be placed around the active dredging unit and an outer silt curtain will surround the remediation site.

The floating silt curtain will consist of connected lengths of geotextile fabric that help to control and contain migration of (contaminated) suspended sediments at the water surface and at depth. A continuous length of floating silt curtain will be arranged to fully enclose both the dredging equipment and the scow barge being loaded with sediment. The silt curtain will be supported by a floating boom in open water areas. Along pier edges, the dredge contractor will have the option of connecting the silt curtain directly to the structure. In either case, the contractor is required to continuously monitor the silt curtain for damage,

dislocation, or gaps, and immediately fix any locations where it is no longer continuous or where its supports have loosened.

The bottom of the silt curtain surrounding the dredging unit shall be weighted with ballast weights or rods affixed to the base of the fabric. These weights are intended to resist the natural buoyancy of the geotextile fabric and lessen its tendency to move in response to currents. The floating silt curtain around the dredging unit will be deployed in a manner that includes a gap above the seafloor to allow for the tidal ranges and fluctuations, and to sufficiently allow for dredge operation. The outer silt curtain surrounding the remediation site shall be deployed in a manner dependent on site-specific conditions including, but not limited to, depth, current velocities, existing infrastructure for curtain deployment, and proximity of sensitive habitat (i.e., essential fish habitat).[1]

Where feasible and applicable, curtains will be anchored and deployed from the surface of the water to just above the substrate. If necessary, silt curtains with tidal flaps will be installed to facilitate curtain deployment in areas of higher flow. Additional curtains may be required by resource agencies to isolate environmentally sensitive areas like essential fish habitat and eelgrass.

Air curtains may be used in conjunction with silt curtains to contain resuspended sediment, to enhance worker safety, and allow barges to transit into and out of the work area without the need to open and close silt curtain gates. Air curtains are formed by laying a perforated pipe along the mudline and pumping air continuously through the piping. The upwelling of the tiny bubbles to the surface of the water has the effect of preventing fine-grained sediments from passing across the line of the pipe.

It is anticipated that the dredging would utilize a derrick barge equipped with a closed environmental bucket such as the Cable Arm Environmental Clamshell® in order to maintain water quality. The dredge material will be placed on material barges and transported with the help of tugboats to a landside staging area. All barges will be outfitted with a water recovery system to collect the water deposited on the barges during dredging operations; the objective is to ensure that no water collected during the operations re-enters the San Diego Bay.

Due to the presence of infrastructure, such as piers and pilings, dredging is constrained in several locations within the project site. Therefore, contaminated areas under piers and pilings will be remedied through subaqueous, or in situ, clean sand cover. In situ clean sand cover is the placement of clean material on top of the contaminated sediment. The material is typically clean sand, silty to gravelly sand, and/or armoring material. Effective application of the clean sand cover requires sufficient thickness, careful placement to avoid disturbance, and maintenance to ensure integrity from future disturbances. Application of the clean sand

[1] United States Army Corps of Engineers: Engineer Research and Development Center. 2008. Technical Guidelines for Environmental Dredging of Contaminated Sediments. ERDC/EL TR-08-29.

cover would involve the transport of material to the site (possibly via truck or barge) and placement of the materials over contaminated sediment. The application of the cover will require a materials barge outfitted with a stone slinger truck, hoppers, and conveyors to move and place the clean sand cover materials over the contaminated marine sediments.

Under State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304*, the San Diego Water Board may prescribe alternative cleanup levels less stringent than background sediment chemistry concentrations if attainment of background concentrations is technologically or economically infeasible. Resolution No. 92-49 requires that alternative levels must be set at the lowest levels the discharger demonstrates and the San Diego Water Board finds is technologically and economically achievable. Resolution No. 92-49 further requires that any alternative cleanup level shall: (1) be consistent with maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial uses of such water; and (3) not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards. The alternative cleanup levels established for the Shipyard Sediment Site are the lowest levels that are technologically and economically achievable, as required under CCR Title 23 section 2550.4(e). The San Diego Water Board is prescribing the alternative cleanup levels for sediment as specified in the Tentative CAO to protect aquatic life, aquatic-dependent wildlife, and human health-based beneficial uses consistent with the requirements of Resolution No. 92-49. Compliance with alternative cleanup levels will be determined using the monitoring protocols summarized in Tentative CAO Finding 34 and described in detail in Section 34 of the Tentative CAO Draft Technical Report (DTR). Monitoring during remediation activities is required as part of the Tentative CAO to document that remedial actions have not caused water quality standards to be violated outside of the remedial footprint, that the target cleanup levels have been reached within the remedial footprint, and to assess sediment for appropriate disposal. This monitoring, which is considered part of the proposed project, will include water quality monitoring, sediment monitoring, and disposal monitoring.

3.6.2 Onshore Dewatering and Treatment

The proposed project requires a landside sediment management site with sufficient space and access to stockpile, dewater, and transport the removed dredge material. Although the exact area required for sediment management will be determined during the final design phase, it is estimated that 2 to 2.5 acres would be required. Five potential staging areas have been identified and will be discussed throughout this PEIR.

The staging area will require site preparation and construction of a pad. The site will be graded and compacted (if necessary), and a sealing liner will be put in place to prevent infiltration. An asphalt pad may need to be constructed. The drying area will be surrounded

by K-rails and sealed with foam and impervious fabric (if necessary to prevent infiltration) to form a confined area.

The dredged sediment, depending upon physical characteristics, will either be off-loaded from the materials barge by an excavator onto dump trucks for placement in the staging area. or treated with a cement-based reagent (pozzolanics) while in the barge and then off-loaded onto trucks for placement in the staging area for curing and sampling. In either event, the sediment will then be mixed with pozzolanics to accelerate the drying and to bind the sediment. The sediment will be spread out and rotated frequently to further accelerate the drying process. The drains located in the drying area will be isolated from the rest of the storm water system at the site. It is anticipated that the decanted water will be disposed of in the sanitary sewer system. If the excess water from the drying area does not meet industrial wastewater permit requirements and cannot be discharged into the City of San Diego sewage system, the water will be dealt with as contaminated waste and removed from the site by a licensed waste hauler. All collected water will be tested and disposed of in accordance with local, state, and federal requirements. After drying, soil sampling will be conducted, and all dredged material will be loaded directly onto trucks for disposal at an approved upland landfill.

3.6.3 Transportation and Disposal

Once the dredge materials have been dried and tested, they will be loaded onto trucks for disposal at an approved landfill. For purposes of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, which is approximately 15 miles southeast of the Shipyard Sediment Site. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal. It is assumed for the purposes of this PEIR that up to 15 percent of the material will require transport to a hazardous waste facility (a Class I facility), which will most likely be the Kettleman Hills Landfill in Kings County, California, near Bakersfield.

The number of truck trips necessary to remove the treated dredge material is based on several factors. The average truck weight during a recent dredging project at BAE Systems was 21 tons per truck. The industry metric standard is 1.6 tons per cubic yard of sediment. Geosyntec Inc. estimates that 50 truck trips per day is the feasible maximum number of trucks that can operate at the treatment site. The treated dredge quantity is 143,400 cy. As a result of the increase in bulk that would occur after treatment with binding agents, the total treated dredge quantity to be transported off site is approximately 164,910 cy. With 21 tons (or 13.1 cy) of material per truck, and 50 truck trips per day, the total duration of the dredge-and-haul activity is approximately 50 weeks. The duration of the dredge-and-haul activity is assumed to include several weeks of equipment setup and staging area preparation; therefore, a 54-week or 12.5-month schedule is anticipated.

Trucks departing from potential Staging Areas 1 through 4 would access Interstate 5 (I-5) south via East Harbor Drive and 28th Street. Trucks departing from Staging Area 5 would access I-5 south either directly from Bay Marina Drive or from West 32nd Street to Marina Way to Bay Marina Drive. The most direct route to Otay Landfill is via I-5 south to State Route 54 (SR-54) east, to Interstate 805 (I-805) south (Figure 3-9).

3.7 DISCRETIONARY PERMITS, APPROVALS, OR ACTIONS REQUIRED

In accordance with sections 15050 and 15367 of the State CEQA Guidelines, the San Diego Water Board is the designated Lead Agency for the project and has principal authority and jurisdiction for CEQA actions. The San Diego Water Board will consider certification of the PEIR in support of Final CAO approval.

Responsible Agencies are those agencies that have jurisdiction or authority over one or more aspects associated with the development of a proposed project. Trustee Agencies are state agencies that have jurisdiction by law over natural resources affected by a proposed project that are held in trust for the people of the state. Project implementation will require approval of a Coastal Development Permit (CDP) by the Port District (pursuant to the California Coastal Act) and administrative (ministerial) approvals from Responsible and Trustee Agencies, including but not limited to the San Diego Water Board (pursuant to CWA and the California Water Code Porter-Cologne Water Quality Control Act [Porter-Cologne Act]), the United States Army Corps of Engineers (ACOE) (pursuant to section 404 of the CWA and section 10 of the Federal Rivers and Harbors Appropriation Act of 1899), the National Marine Fisheries Service (NMFS) (pursuant to the Federal Magnusson-Stevens Act), the United States Fish and Wildlife Service (U.S. FWS) (pursuant to the Federal Endangered Species Act), the Air Pollution Control District (APCD), the United States Coast Guard, and the California State Lands Commission. The Port District has land use authority for the potential staging areas and has delegated jurisdiction from the California Coastal Commission to issue CDPs. The California State Lands Commission (CSLC) has jurisdiction and management authority over all ungranted tidelands and submerged lands and review authority for such lands legislatively granted to local jurisdictions, such as the Port District. See Table 3-1 for a list of discretionary and permit approvals required for project implementation.

The California Department of Fish and Game (CDFG) will not have regulatory jurisdiction (i.e., will not require a Lake or Streambed Alteration Agreement), but may comment on the PEIR pursuant to CEQA to address issues with a potential to adversely affect avian and marine species. Additionally, the CDFG will review and comment on ACOE permits pursuant to the Federal Fish and Wildlife Coordination Act.

Table 3-1: Discretionary Permits and Approvals

Discretionary Permits/Approvals	Agency
Final CAO Approval/Remedial Action Plan Approval	San Diego Water Board
PEIR Certification	San Diego Water Board
Project Approval	San Diego Water Board California Coastal Commission State Lands Commission (consultation)
CWA section 404 Permit and section 10 of the Federal Rivers and Harbors Appropriation Act of 1899 Permit	ACOE United States Coast Guard (consultation) U.S. FWS (consultation) NMFS (consultation)
CWA Section 401 Certification water quality permits	San Diego Water Board
Report for WDRs for Dredging Permit/Dewatering Permit	San Diego Water Board
Air Pollution Control Permit	APCD
CDP and land use approval for use of potential staging areas located in the Port District	Port District
Authorization for dredging on legislatively granted sovereign lands and remediation activity on ungranted sovereign lands	CSLC

ACOE = United States Army Corps of Engineers
APCD = Air Pollution Control District
CAO = Cleanup and Abatement Order
CDP = Coastal Development Permit
CSLC = California State Lands Commission
CWA = Clean Water Act
NMFS = National Marine Fisheries Service
PEIR = Program Environmental Impact Report
Port District = San Diego Unified Port District
San Diego Water Board = California Regional Water Quality Control Board, San Diego Region
U.S. FWS = United States Fish and Wildlife Service
WDRs = Waste Discharge Requirements

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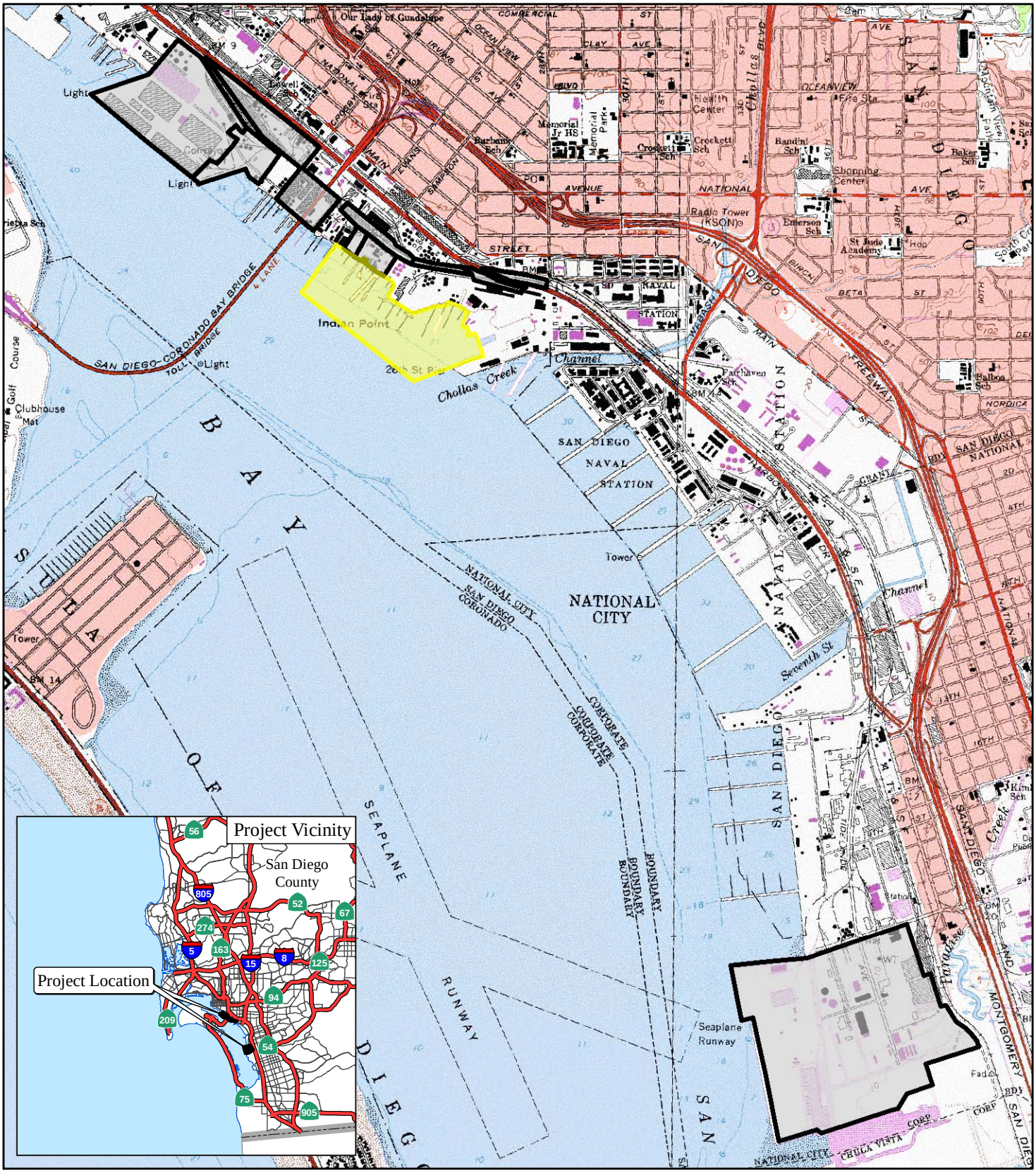

LSA

FIGURE 3-1

Shipyard Sediment Remediation Project

Project Location

SOURCE: USGS 7.5' Quad - National City (1975), Point Loma (1994). CA

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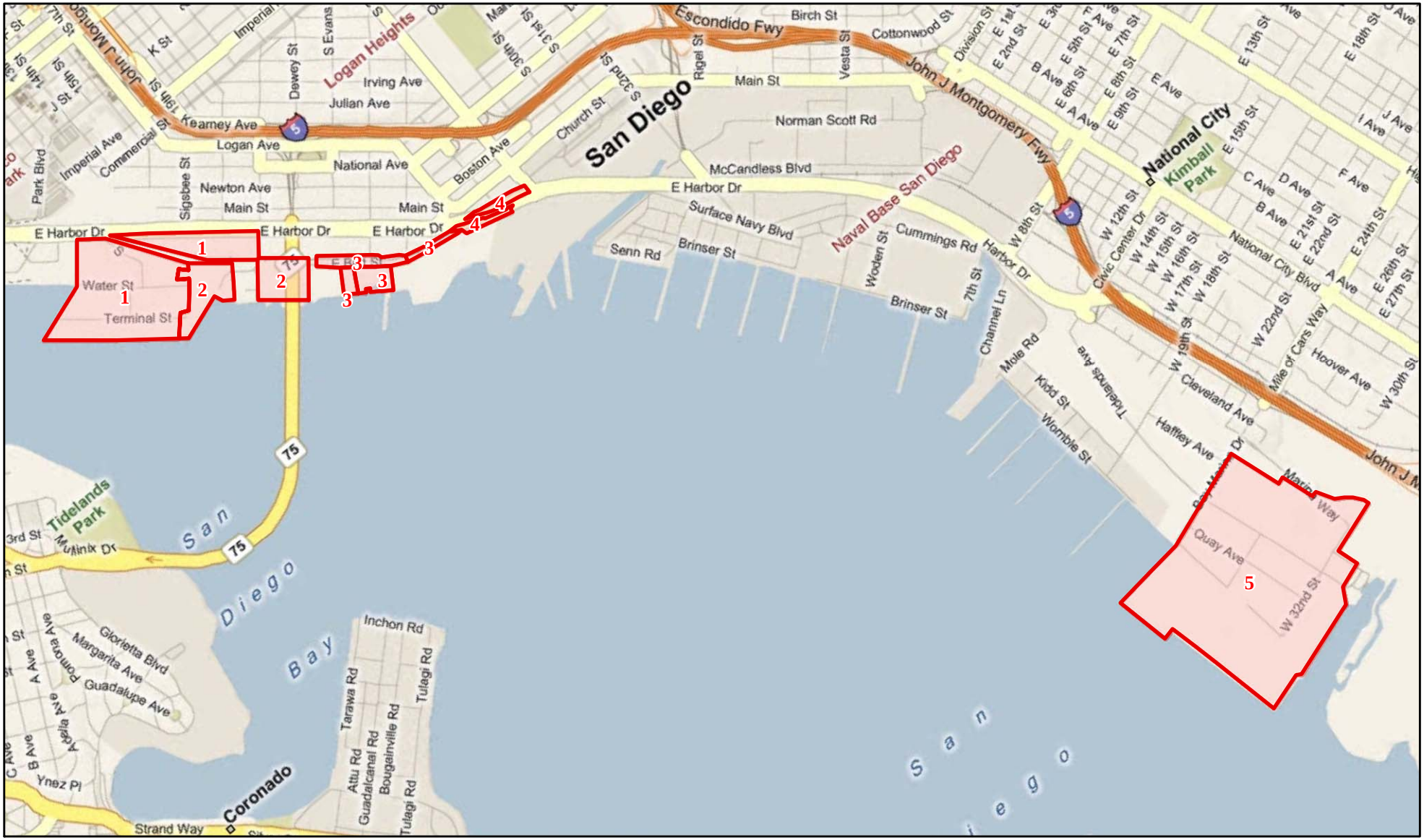

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LEGEND

Potential Sediment Staging Areas

FIGURE 3-2

0 1250 2500

FEET

SOURCE: Bing Maps (2008)

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Shipyard Sediment Remediation Project

Potential Sediment Staging Locations Index

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LSA

FIGURE 3-3

LEGEND

Potential Sediment Staging Area 1

Potential Usable Areas (with Acreage)

0 225 450

FEET

SOURCE: Bing Maps (2008)

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Shipyard Sediment Remediation Project

Potential Sediment Staging Area 1
10th Avenue Marine Terminal and Adjacent Parking Lot

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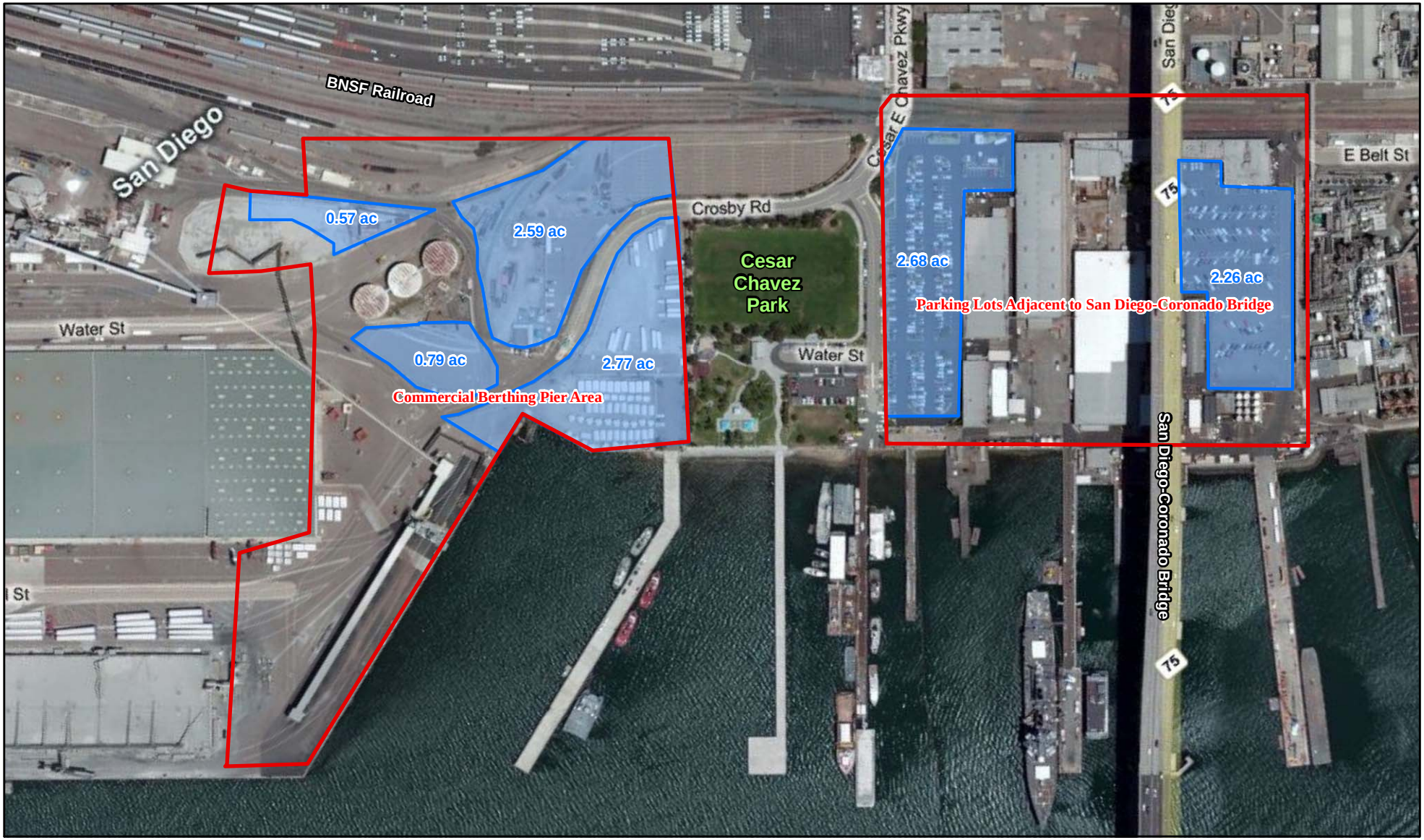

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LEGEND

Potential Sediment Staging Area 2

Potential Usable Areas (with Acreage)

0 150 300

FEET

SOURCE: Bing Maps (2008)

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FIGURE 3-4

Shipyard Sediment Remediation Project

Potential Sediment Staging Area 2
Commercial Berthing Pier Area and
Parking Lots Adjacent to San Diego-Coronado Bridge

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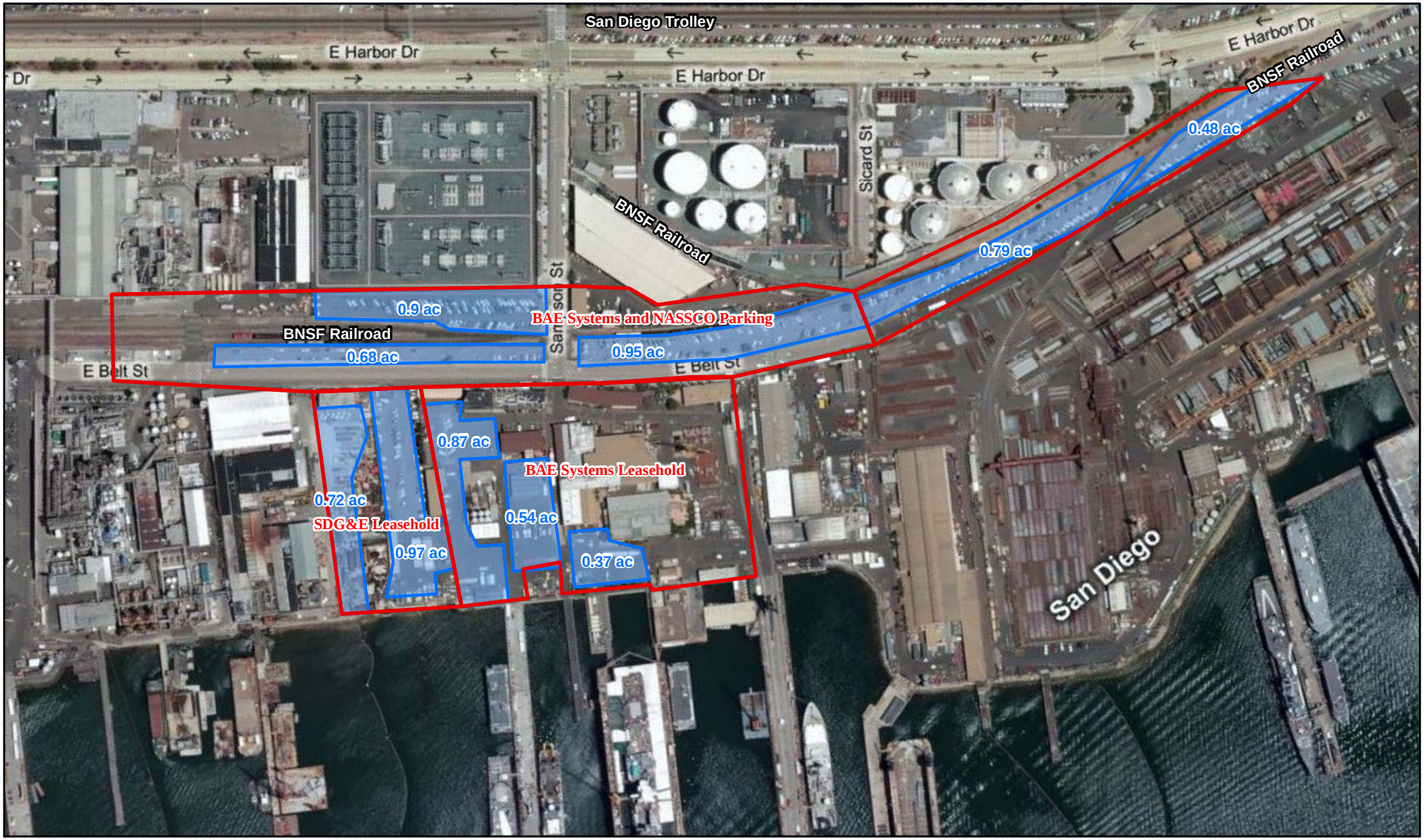

LSA

LEGEND

Potential Sediment Staging Area 3

Potential Usable Areas (with Acreage)

FIGURE 3-5

0 150 300

FEET

SOURCE: Bing Maps (2008)

Shipyard Sediment Remediation Project

Potential Sediment Staging Area 3
SDG&E Leasehold/BAE Systems Leasehold/BAE Systems and NASSCO Parking

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LSA

LEGEND

Potential Sediment Staging Area 4

Potential Usable Areas (with Acreage)

FIGURE 3-6

0 100 200

FEET

SOURCE: Bing Maps (2008)

Shipyard Sediment Remediation Project

Potential Sediment Staging Area 4
NASSCO Parking and Parking Area North of Harbor Drive

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LSA

LEGEND

Potential Sediment Staging Area 5

Potential Usable Areas (with Acreage)

FIGURE 3-7

0 400 800

FEET

SOURCE: Bing Maps (2008)

Shipyard Sediment Remediation Project

Potential Sediment Staging Area 5
24th Street Marine Terminal and Adjacent Parking Areas

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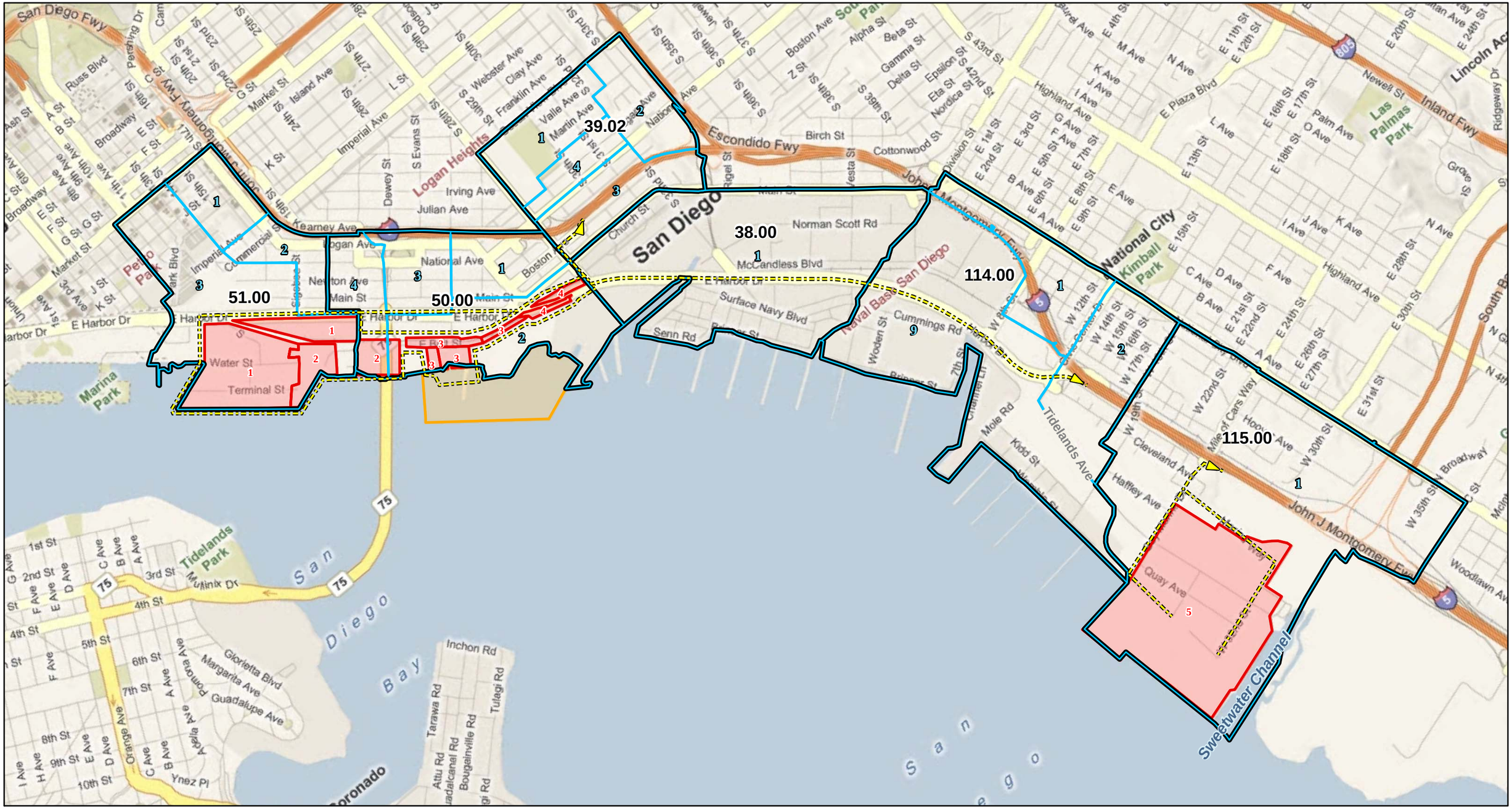

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LEGEND

- Census Tracts
- Census Block Groups
- Potential Sediment Staging Areas
- Shipyard Sediment Project Site
- Proposed Haul Routes

0 1000 2000
FEET

SOURCE: Bing Maps (2008), U.S. Census Bureau (2000)

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FIGURE 3-8

Shipyard Sediment Remediation Project

Study Area Census Tracts and Haul Routes

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TABLE OF CONTENTS

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4.0 EXISTING ENVIRONMENTAL SETTING, ENVIRONMENTAL ANALYSIS, IMPACTS, AND MITIGATION MEASURES

The following chapter contains impact analysis sections for the environmental topics determined to be potentially impacted by the proposed project. For each environmental impact issue analyzed, the EIR includes a detailed explanation of the existing conditions, thresholds of significance that will be applied to determine whether the project's impacts are significant or less than significant, analysis of the environmental impacts, any applicable mitigation measures, and a determination of whether the project would have a significant impact following mitigation, if implemented.

A "significant impact" or "significant effect" means "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (14 California Code of Regulations [CCR] 15382). Potentially significant impacts are those project impacts that cannot be reduced to a less than significant level by project design features alone and would require additional mitigation measures to further reduce the impacts. Impacts in this category may be reduced to a less than significant level with mitigation measures (if feasible) or may remain unavoidable adverse impacts. Less than significant impacts are those project impacts that are determined to be less than significant such that no additional requirements, conditions, or mitigation measures are needed.

Chapter 4.0 also includes within each environmental topic analyzed a discussion of the cumulative effects of the project when considered in combination with other projects, causing related impacts, as required by Section 15130 of the State CEQA Guidelines.

CUMULATIVE PROJECTS

CEQA Guidelines CCR Section 15126 requires that EIRs consider the significant environmental effects of a proposed project, while CEQA Guidelines CCR Section 15130 requires that EIRs consider the cumulative impacts of a proposed project. Cumulative impacts are two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts (CEQA Guidelines CCR Section 15355).

In accordance with CEQA Guidelines CCR Section 15130, cumulative impacts are anticipated impacts of the proposed project along with reasonably foreseeable growth. Reasonably foreseeable growth may be based on either:

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or
- A summary of projections contained in the adopted General Plan or related planning document, or in a prior environmental document that has been adopted or certified, and that described or evaluated regional or areawide conditions contributing to the cumulative impact.

The proposed project involves the one-time dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the proposed project would not have an ongoing contribution to cumulative impacts to the environment. An analysis of the cumulative impacts associated with other dredging projects and the construction of related San Diego Unified Port projects and the proposed project is provided in the cumulative impacts discussion under each individual impact category in this chapter.

There is the potential for there to be dredging and development activity in the Bay and the vicinity of the San Diego Unified Port concurrent with the active dredge and haul for the proposed project. Although there are no other contaminated sediment dredging projects currently scheduled for implementation in San Diego Bay, the San Diego Water Board anticipates that regularly scheduled maintenance dredging projects may occur in San Diego Bay over the next several years.

To estimate the likely volume of these potential dredging actions, the San Diego Water Board has provided maintenance and environmental dredging records for the 11-year period from 1994 to 2005. These records show that an average of approximately 245,000 cubic yards (cy) of material was dredged from San Diego Bay each year, with yearly totals ranging from 0 to 763,000 cy. While the dredge volume proposed for this project (approximately 143,400 cy) represents a significant dredge volume, it falls within the historic ranges for the yearly overall volume dredging activity in San Diego Bay.

The San Diego Unified Port website identifies several key Port District projects to be implemented over the next several years.[1]

- **North Embarcadero Visionary Plan:** The North Embarcadero Visionary Plan (NEVP) is a public improvement project covering approximately 1.5 miles of waterfront along Harbor Drive from Laurel Street to Navy Pier. Plazas, public art, improved landscaping, and significantly improved roadways are all part of the plan. Phase I incorporates Harbor Drive from Navy Pier to the B Street Pier, and a small portion of West Broadway. groundbreaking is expected to begin by December 2011.

[1] Source: http://www.portofsandiego.org/, accessed May 11, 2011.

- **San Diego Convention Center Expansion:** The Port of San Diego is proposing an expansion of the San Diego Convention Center, including a proposed hotel and a Port Master Plan Amendment. A Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the project was issued in December 2010, and the EIR preparation is currently underway.
- **Chula Vista Bayfront Master Plan:** The Chula Vista Bayfront Master Plan includes a proposed resort and Convention Center and a proposed Pacifica Companies residential development in the first phase of implementation. The EIR has been certified, and the project was approved in 2010.
- **Ruocco Park:** This proposed public park will be located on 3.3 acres along the San Diego Bay waterfront west of Pacific Highway and south of Harbor Drive. Construction is planned to begin in the spring of 2011.
- **Lane Field:** Lane Field encompasses approximately 5.7 acres of land located on the north side of Broadway, between North Harbor Drive and Pacific Highway, adjacent to the core of San Diego's downtown. The proposed bayfront project includes two hotels, visitor-serving retail, underground public parking, and nearly 2 acres of public space. Construction is expected to begin in late 2011.
- **Old Police Headquarters (OPH) and Park Project:** The project comprises: (1) retention and adaptive reuse of the OPH for a mix of specialty retail, entertainment, and restaurant uses; (2) partial reconfiguration of Harbor Seafood Mart, OPH, and Seaport Village parking lots; (3) new public park and plaza areas on the north side of OPH, adjacent to Harbor Drive; and (4) implementation of a Parking Management Program. At its meeting on February 1, 2006, the Board of Port Commissioners certified the EIR.
- **Commercial Fisheries Revitalization Plan:** The proposed plan will address how to support commercial fishing at the two commercial fishing facilities on San Diego Bay: Driscoll's Wharf in America's Cup Harbor in the north bay/Point Loma, and Tuna Harbor at G Street near downtown San Diego.

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4.1 TRANSPORTATION AND CIRCULATION

This section of the Program Environmental Impact Report (PEIR) addresses vehicle traffic changes resulting from the proposed Shipyard Sediment Remediation Project (proposed project). The vehicle traffic analysis provides a discussion of transportation, circulation, and parking in the existing setting and identifies the project's potential short-term impacts on vehicle traffic conditions. The following analysis recommends mitigation measures to reduce the significance of potentially significant project impacts pursuant to the California Environmental Quality Act (CEQA).

The traffic discussion includes information provided in the *Traffic Impact Analysis* (LSA Associates, May 2011) prepared for the project, which is included as Appendix B to this PEIR. A subsequent analysis of a mitigation haul route is appended to the *Traffic Impact Analysis.*

4.1.1 Existing Setting

4.1.1.1 Existing Circulation System

Key roadways in the vicinity of the proposed project area are as follows:

- **Interstate 5:** Interstate 5 (I-5) is located to the east of the project site and is classified and functions as an eight-lane freeway with four main lanes of traffic in each direction. Direct access to the project site from I-5 is provided via northbound and southbound on- and off-ramps at 24th Street, northbound on- and off-ramps at National Avenue, and a southbound on-ramp at Boston Avenue.
- **Harbor Drive:** Harbor Drive functions as an east-west, four-lane major arterial between Sigsbee Street and Vesta Street. The road has a raised or landscaped median along the entire length of the segment. Harbor Drive is a designated truck route and has a Class II bikeway with bike lanes along both sides of the road. The street has intermittent curbs, sidewalks, and parallel parking along the northern side of the road. The southern side of Harbor Dive has limited curbs and sidewalks. Parallel parking is intermittently permitted between Schley Street and 32nd Street. The posted speed limits are 40 and 45 miles per hour (mph).
- **28th Street:** 28th Street is located southeast of the project site and functions as a north-south, four-lane collector between Boston Avenue and Main Street, and as a four-lane with raised median major arterial between Main Street and Harbor Drive. Between National Avenue and Boston Avenue, 28th Street functions as a three-lane collector with two northbound lanes and a southbound lane. This street is a designated truck route. Sidewalks and curbs line both sides of the street for the entire length of the segment. Parallel parking is available on both sides of the street between Main Street and Harbor Drive. The National Steel and Shipbuilding Company (NASSCO) shipyard is located at the southern end of 28th Street. South of Main Street, Naval Base San Diego fronts the

east side of 28th Street, including an access gate to the Base. I-5 on- and off-ramps connect 28th Street to I-5 near the northern end of the segment. The Traffic Study for the proposed Barrio Logan/Harbor 101 Community Plan update recommends that the segment of 28th Street between Harbor Drive and the I-5 ramps be classified as a four-lane major arterial.

- **Boston Avenue:** Boston Avenue functions as an east-west, two-lane collector between 28th Street and 32nd Street. This road has sidewalks, curbs, and parallel parking spaces on both sides of the street. A southbound I-5 on-ramp is located at the intersection with 29th Street.
- **National Avenue:** National Avenue functions as an east-west, two-lane collector between 16th Street and 27th Street and a four-lane collector between Commercial Street and 16th Street. Trucks above 5 tons are prohibited by signage to travel along National Avenue. An eastbound State Route 75 (SR-75) off-ramp is located along National Avenue between Cesar E. Chavez Parkway and Evans Street. This segment of National Avenue has sidewalks, curbs, and parallel parking on both sides of the road. Diagonal parking is provided on National Avenue on the south side of the street for portions of the segment between Beardsley Street and Evans Street.
- **Cesar E. Chavez Parkway:** Cesar E. Chavez Parkway functions as a north-south, four-lane collector between Logan Avenue and National Avenue and between Main Street and Harbor Drive. This road functions as a three-lane collector between Logan Avenue and Kearny Avenue and between National Avenue and Main Street. Cesar E. Chavez Parkway is lined with sidewalks and curbs on both sides of the road for the entire length of the street. Parallel parking is available on the west side of the street between National Avenue and Main Street. Signs prohibit trucks above 5 tons from traveling along Cesar E. Chavez Parkway. A northbound I-5 on-ramp is located at the intersection of Cesar E. Chavez Parkway and Kearny Avenue. A westbound SR-75 on-ramp is located at the intersection of Cesar E. Chavez Parkway and Logan Avenue.
- **Sampson Street:** Sampson Street functions as a north-south, two-lane collector between I-5 and Harbor Drive. Sidewalks, curbs, and parallel parking spaces are located on both sides of the road. Trucks above 5 tons are prohibited by signage to travel along Sampson Street.
- **Main Street:** Main Street functions as an east-west, two-lane collector between Beardsley Street and 26th Street and between Rigel Street and Yama Street. Main Street functions as a three-lane collector between 26th Street and 27th Street and between 29th Street and 32nd Street, and a four-lane collector between 27th Street and 29th Street and between 32nd Street and Rigel Street. Curbs and sidewalks are located on both sides of the road, along the entire length of the segment. Signs prohibit trucks over 5 tons from traveling on Main Street, west of 26th Street. A northbound Interstate 15 (I-15) on-ramp and a southbound I-15 off-ramp are located between 32nd Street and Rigel Street. Southbound I-5 on- and off-ramps are also located near the intersection with Yama Street. Main Street is a designated Class III bikeway. Parallel parking is intermittently permitted along both sides of the road.

- **24th Street:** 24th Street (also known as Bay Marina Drive) is a four-lane east-west collector between Tidelands Avenue and Harrison Avenue and a four-lane east-west arterial between Harrison Avenue and Highland Avenue. At the intersection with Tidelands Avenue, 24th Street has sidewalks and curbs.
- **Tidelands Avenue:** Tidelands Avenue is a two-lane north-south collector. At the intersection with 24th Street, Tidelands Avenue has sidewalks and curbs.

See Figure 4.1-1, Existing Circulation System.

4.1.1.2 Existing Intersection LOS Analysis

Figure 4.1-2 presents the existing a.m. and p.m. peak-hour trips. These peak-hour trips are used to calculate (or determine) the existing level of service (LOS). Table 4.1-1 summarizes the results of the existing a.m. and p.m. peak-hour LOS analysis for the study area intersections. The existing LOS calculation worksheets are provided in Appendix B of this PEIR. As Table 4.1-1 indicates, all study area intersections currently operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour, with the exception of the I-5 southbound on-ramp/Boston Avenue intersection (LOS E during p.m. peak hour).

Table 4.1-1: Existing Peak-Hour Intersection LOS Summary

Intersection		Control Type	Existing Condition			
			AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
1	Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B
2	Cesar E. Chavez Parkway/Harbor Drive	Signalized	31.4	C	25.8	C
3	Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B
4	28th Street/Harbor Drive	Signalized	27.9	C	22.2	C
5	28th Street/Main Street	Signalized	30.0	C	33.3	C
6	28th Street/Boston Avenue	Signalized	18.4	B	26.0	C
7	28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-
8	28th Street/National Avenue	Signalized	33.7	C	31.3	C
9	I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B
10	I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	**49.2**	**E**
11	I-5 Northbound Ramps/24th Street	Signalized	25.3	C	22.3	C
12	I-5 Southbound Ramps/24th Street	Signalized	23.5	C	27.7	C
13	Cleveland Avenue/24th Street	Unsignalized	8.9	A	10.0	B
14	West 32nd Street/24th Street	Signalized	11.3	B	19.2	B
15	Tidelands Avenue/24th Street	Signalized	26.4	C	29.9	B
16	Tidelands Avenue/West 32nd Street	Unsignalized	7.3	A	8.0	A

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
□ = Exceeds LOS criteria
LOS = level of service
sec = seconds

Figure 4.1-3 presents the existing average daily trips at the study area roadway segments. Table 4.1-2 summarizes the daily traffic volumes and volume-to-capacity (v/c) ratios for the area roadway segments in the existing condition. As Table 4.1-2 illustrates, all study area roadway segments operate at an acceptable LOS (LOS D or better), with the exception of National Avenue between 28th Street and the I-5 northbound ramps (LOS F), and Boston Avenue between 28th Street and the I-5 southbound ramps (LOS F).

4.1.1.3 Existing Parking Conditions

The street network in the vicinity of the shipyards and the potential staging areas serve traffic generated by employment at the shipyards and other harbor and industrial uses in addition to the military facilities in the area, including the 32nd Street Navy Exchange. Parking in the vicinity of the shipyards during the work week is constrained. In order to limit parking demand and reduce vehicle miles travelled, the shipyards promote employee use of transit, particularly the San Diego Trolley that stops nearby at the Harborside stop at 1325 South 28th Street, and the Pacific Fleet stop at 1800 South 32nd Street. In addition, NASSCO provides shuttle buses for shipyard workers living in and near the City of Cajon. The shipyards also utilize off-site leased parking for employees. Staging Areas 3 and 4 are currently used for shipyard worker parking.

4.1.2 Regulatory Setting

4.1.2.1 Regional Transportation Plan

The Regional Transportation Plan (RTP), which was prepared and adopted by the San Diego Association of Governments (SANDAG), is the region's long-range mobility plan. The RTP plans for and identifies projects for multiple modes of transportation in order to achieve a balanced regional system. It establishes the basis for state funding of local and regional transportation projects, and is a prerequisite for federal funding. SANDAG prioritizes and allocates the expenditure of regional, state, and federal transportation funds to implement RTP projects.

4.1.2.2 Congestion Management Plan

The region's Congestion Management Program (CMP), also prepared by SANDAG, serves as a short-term element of the RTP. It focuses on actions that can be implemented in advance of the longer-range transportation solutions contained within the RTP. The CMP establishes programs for mitigating the traffic impacts of new development and monitoring the performance of system roads relative to LOS standards. It links land use, transportation, and air quality concerns.

Table 4.1-2: Existing Roadway Segment LOS Summary

Roadway	Segment	Roadway Classification	Capacity at LOS E	Existing		
				Volume	LOS	V/C
Harbor Drive	Park Boulevard and Cesar E. Chavez Parkway	4-Lane Major Arterial	40,000	12,903	A	0.32
	Cesar E. Chavez Parkway and Sampson Street	4-Lane Major Arterial	40,000	9,140	A	0.23
	Sampson Street and 28th Street	4-Lane Major Arterial	40,000	10,085	A	0.25
	28th Street and 32nd Street	4-Lane Major Arterial	40,000	14,240	B	0.36
28th Street	Harbor Drive and Main Street	4-Lane Major Arterial	40,000	15,231	B	0.38
	Main Street and Boston Avenue	4-Lane Collector (with TWLT)	30,000	18,454	C	0.62
	Boston Avenue and National Avenue	3-Lane Collector (with TWLT)	22,500	14,616	C	0.65
National Avenue	28th Street and I-5 Northbound Ramps	3-Lane Collector (no TWLT)	11,250	**17,691**	**F**	**1.57**
Boston Avenue	28th Street and I-5 Southbound Ramps	2-Lane Collector (no TWLT)	8,000	**8,188**	**F**	**1.02**
24th Street	I-5 Northbound Ramps and I-5 Southbound Ramps	4-Lane Major Arterial	40,000	16,716	B	0.42
	I-5 Southbound Ramps and Cleveland Avenue	4-Lane Major Arterial	40,000	9,397	A	0.23
	Cleveland Avenue and West 32nd Street	4-Lane Major Arterial	40,000	6,292	A	0.16
	West 32nd Street and Tidelands Avenue	4-Lane Collector (no TWLT)	15,000	3,846	A	0.26
West 32nd Street	24th Street and Tidelands Avenue	2-Lane Collector	8,000	1,002	A	0.13
Tidelands Avenue	24th Street and West 32nd Street	2-Lane Collector	8,000	1,154	A	0.14

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
□ = Exceeds LOS criteria
LOS = level of service
TWLT = Two-way left-turn lane
V/C = volume-to-capacity (ratio)

4.1.2.3 Bayshore Bikeway Plan

The Bayshore Bikeway is a designated 24-mile bikeway route around San Diego Bay. Planning for Bayshore Bikeway began in 1975 with a feasibility study prepared by the California Department of Transportation (Caltrans) and funded by National City. The stated objective of the study was "to determine an acceptable route for bicyclists to traverse the southern regions of San Diego Bay." The final study, released in 1976, recommended 11 miles of bicycle paths and 14 miles of bike lanes and bike routes, which would provide convenient and scenic bicycle transportation and recreation around the bay. Currently, the Bayshore Bikeway route consists of approximately 12 miles of off-street bicycle paths, and about 12 miles of on-street sections designated as either bicycle lanes or bicycle routes. SANDAG is developing additional improvements to the bikeway based on the Bayshore Bikeway Plan, which was adopted by SANDAG in 2006, to identify opportunities to improve the bikeway along the east side of the Bay. More specifically, SANDAG is undertaking engineering and environmental studies for the next project, which would extend the bike path north along the east side of San Diego Bay through Chula Vista and National City to 32nd Street in the City of San Diego. A new section of bike path from Palomar Street to H Street in Chula Vista is scheduled for construction in the summer of 2011. SANDAG is also pursuing funding for improvements beginning at Marina Way in National City north to 32nd Street in San Diego. Construction is anticipated to begin in summer 2012.[1]

4.1.2.4 City General Plans

City of San Diego Mobility Element. The Mobility Element, the RTP, and the CMP all highlight the importance of integrating transportation and land use planning decisions, and using multimodal strategies to reduce congestion and increase travel choices. However, the Mobility Element more specifically plans for the City of San Diego's transportation goals and needs. An overall goal of the Mobility Element is to further the attainment of a balanced, multimodal transportation network that also minimizes environmental and neighborhood impacts. A balanced network is one in which each mode, or type of transportation, is able to contribute to an efficient network of services meeting varied user needs.

Barrio Logan/Harbor 101 Community Plan. Community plans in the City of San Diego establish land use designations and policies guiding development for individual communities. The Barrio Logan/Harbor 101 Community Plan ensures consistency with overall guiding principles, land use policies, and other goals found in the City's General Plan. The Barrio Logan/Harbor 101 Community Plan was adopted in 1978. Because of the community's geographical location on the San Diego waterfront, proximity to downtown San Diego, and its older urban and mixed-use characteristics that have been described at length, transportation plays a major role in the community's development. Practically all known

[1] http://www.sandag.org/index.asp?projectid=63&fuseaction=projects.detail, accessed May 2011.

forms of transportation have an important role in the community and its future development. Transportation modes for the Barrio Logan/Harbor 101 community fall into the following categories: Automobile Transportation (freeways, major streets, collector streets, and local streets), Public Transportation in the form of rail (Metropolitan Transit Development Board [MTDB]) and bus transportation, Industry-related Transportation (rail, trucking, and shipping), and Pedestrian/Bicycle Open Space-Related Transportation (recreational transit, bicycle, and pedestrian). According to the Barrio Logan/Harbor 101 Community Plan, because of the many existing transportation modes in the community, major circulation conflicts exist. The City is currently updating the Barrio Logan/Harbor 101 Community Plan. The preferred land use map and plan are anticipated to be ready for review in late fall 2011.

National City General Plan. The National City General Plan was approved in 1996 and contains land use and development policies that serve as the foundation for all planning decisions in the City. The combined General Plan/Zoning Map recognizes the rights-of-way of I-5, Interstate 805 (I-805), and the San Diego Trolley. National City is currently in the process of updating its General Plan. The update considers the interconnectedness of planning issues, responds to diverse community needs, identifies realistic implementation actions, and establishes a monitoring and evaluation process to track progress toward reaching goals and objectives. Once approved, the updated Circulation Element will be a transportation plan for the movement of people and goods, and it will identify the general location and extent of existing and proposed major roadways, transportation routes, terminals, air and water ports, and pedestrian and bikeway facilities.

4.1.3 Thresholds of Significance

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines (March 2010). The project may be considered to have a significant effect related to traffic and circulation if implementation would result in one of more of the following:

Threshold 4.1.1: 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 system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Threshold 4.1.2: 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 county congestion management agency for designated roads or highways.

Threshold 4.1.3: Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks.

Threshold 4.1.4: Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Threshold 4.1.5: Result in inadequate emergency access.

Threshold 4.1.6: Conflict with adopted policies, plan or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

4.1.4 Impacts and Mitigation

The Initial Study (IS) prepared by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) (Appendix A) determined that the project would not result in a permanent change to air traffic patterns. In addition, the dredge, treatment and transport of sediment does not include any operational changes to the shipyard or other facilities, or long-term improvements to circulation or transportation facilities, and would not create hazardous conditions related to transportation design features. Therefore, these issues (Thresholds 4.1.3 and 4.1.4) are not addressed further in this PEIR.

In addition, the CMP, adopted on November 22, 1991, by SANDAG, is intended to link land use, transportation, and air quality through LOS performance. It focuses on actions that can be implemented in advance of the longer-range transportation solutions contained within the RTP. The CMP requires an enhanced CEQA review for projects that are expected to generate more than 2,400 average daily traffic (ADT) or more than 200 peak-hour trips. This review requires additional analysis, including freeway mainline analyses and long-term analysis using volumes from the regional traffic model.

The proposed project would generate approximately 348 passenger car equivalent (PCE) trips per day and 59 PCE peak-hour trips only for the duration of the dredging and haul activity. The project trip generation is below the CMP trip generation thresholds. In addition, the proposed project is for the dredge, treatment, and removal of sediment, and will not result in any long-term changes to shipyard operations or operational traffic impacts. Therefore, the proposed project will not conflict with the applicable CMP, and this issue (Threshold 4.1.2) is not addressed further in this PEIR.

The proposed project traffic will use existing streets that currently experience truck traffic as a result of port industrial and marine uses in the area. No temporary or permanent street closures are required. As noted in the IS, there would be no change to existing emergency access routes. Therefore, this issue (Threshold 4.1.5) is not addressed further in this PEIR.

Finally, vessel traffic in San Diego Bay, including the proposed use of tugs and barges for the remedial dredging, is subject to existing laws and procedures that promote marine safety. Because the proposed project would result in a limited number of barge trips for the duration of the dredging, implementation of the project would not significantly increase vessel congestion in the San Diego Bay. The Harbor Police Department provides law enforcement services for San Diego Bay from Point Loma to Chula Vista, enforcing local and state laws as well as educating the boating public in navigation rules and boating safety.[1] In addition, the 11th Coast Guard District provides search and rescue, Homeland Security, law enforcement, and marine safety services in San Diego Bay.[2] These entities currently manage vessel traffic when maintenance dredging occurs in the bay, and the use of tugs and barges for the proposed remediation dredging would create circumstances in the bay similar to what occurs for maintenance dredging. The risk of accidents between the multiple users within the Bay is dependent on several factors, including vessel size and maneuverability; vessel speed; the effects of wind, waves, and currents; and the amount of traffic congestion. Generally, the safety of competing users is contingent upon common sense and "rules of the road."[3] All users in the San Diego Bay waters are responsible for being aware of basic navigational rules (e.g., maintain a safe speed at all times so that action can be taken to avoid collisions, among other rules). The existing regulations and procedures will apply to the proposed project's use of tugs and barges, and the project will have a negligible impact on San Diego Bay vessel traffic. Therefore, this issue is not addressed further in this PEIR.

4.1.4.1 Methodology

The traffic analysis was conducted according to the methodologies and procedures outlined in the City of San Diego *Traffic Impact Study Guidelines*, San Diego Traffic Engineers' Council (SANTEC) *Traffic Impact Study Guidelines*, the Highway Capacity Manual (HCM) 2000 published by the Transportation Research Board, and applicable provisions from CEQA. Daily, and a.m., and p.m. peak-hour (7:00 a.m.–9:00 a.m. and 4:00 p.m.–6:00 p.m., respectively) turn volumes for the study area intersections and roadway segments were collected by National Data and Surveying Services (NDS) in March 2011. In addition, traffic counts were collected by NDS in May 2011 for the purpose of analyzing an alternate route for mitigation purposes. The existing traffic counts are provided in the *Traffic Impact Analysis* provided in Appendix B of this PEIR.

Intersection LOS Methodology. The HCM 2000 methodology has been used to determine the intersection LOS at signalized intersections within the study area. The resulting delay is

1 Source: http://www.portofsandiego.org/harbor-police.html, accessed May 2011.
2 Source: http://www.uscg.mil/d11/, accessed May 2011.
3 The International Regulations for Preventing Collisions at Sea 1972 (COLREGS) are published by the International Maritime Organization (IMO), and set out the "rules of the road" to be followed by ships and other vessels at sea. The Rules of the Road are also published by the United States Government Printing Office.

expressed in terms of LOS, where LOS A represents free-flow activity and LOS F represents over-capacity operation. LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadway geometrics, speed, delay, and maneuverability on roadway and intersection operations.

The relationship between delay and LOS at signalized intersections is summarized in the tabulation below. Intersections with LOS D are considered the upper limit of satisfactory conditions.

LOS	Unsignalized Intersection Delay per Vehicle (sec)	Signalized Intersection Delay per Vehicle (sec)
A	≤10.0	≤10.0
B	>10.0 and ≤15.0	>10.0 and ≤20.0
C	>15.0 and ≤25.0	>20.0 and ≤35.0
D	>25.0 and ≤35.0	>35.0 and ≤55.0
E	>35.0 and ≤50.0	>55.0 and ≤80.0
F	>50.0	>80.0

Source: Transportation Research Board, *Highway Capacity Manual* (2000).
LOS = level of service
sec = seconds

Roadway Segment LOS Methodology. Roadway segments were analyzed on a daily basis by comparing the ADT volume to the City of San Diego Proposed LOS Standards – Street Segment Average Daily Trip Thresholds for Staging Areas 1 through 4. The City of National City has amended the SANTEC roadway capacities, and these are analyzed separately for Staging Area 5. The LOS standards are based on traffic volumes and roadway characteristics.

The tabulation below identifies threshold changes in delay or v/c ratios that define an impact for intersections and roadway segments. Changes in delay or v/c ratios are only considered significant if the existing LOS is E or F.

LOS with Project	Intersection Delay (sec)	Roadway Segments V/C Increase
City of San Diego		
E	>2.0	>0.02
F	>1.0	>0.01
City of National City		
E or F	>2.0	>0.02

Sources: City of San Diego *Traffic Impact Study Guidelines;* and San Diego Traffic Engineers' Council (SANTEC), *Traffic Impact Study Guidelines* (July 1998).
LOS = level of service sec = seconds V/C = volume-to-capacity (ratio)

The proposed project was analyzed for potential traffic impacts resulting from dredge, treatment, and removal activities. No long-term changes in existing land use or shipyard operations are proposed as part of the sediment removal project. Therefore, no long-term changes to traffic and parking conditions would occur as a result of the project.

4.1.4.2 Potentially Significant Impacts

Project Trip Generation. Trucks departing from potential Staging Areas 1 through 4 would access I-5 south via East Harbor Drive and 28th Street. Trucks departing from Staging Area 5 would access I-5 south either directly from Bay Marina Drive or from West 32nd Street to Marina Way to Bay Marina Drive. As described later in this section, an alternative haul route for Staging Areas 1 through 4 was studied for mitigation purposes. This route would utilize Harbor Drive south to the Civic Center Drive interchange with I-5.

To determine the project traffic destined for the staging areas and landfills, the shipyards provided traffic data that included the number of delivery vehicles, haul vehicles, and employees. Based on these data, a total of approximately 50 haul trucks, 8 delivery trucks, and 29 employees will be destined to the project site on the busiest day. For a conservative approach, a 10-hour shift was used to capture both a.m. and p.m. peak hours. The 10-hour shift is scheduled to start at 7:00 a.m. and end at 5:30 p.m. To convert the daily truck traffic to peak-hour truck traffic, the daily trips were divided by 10 hours and the ingress and egress were split evenly since it is anticipated that haul trucks will travel back and forth throughout the day. Of the 50 haul trucks, 5 haul trucks will access the site during the a.m. peak hour, and 5 haul trucks will access the site during the p.m. peak hour. Of the 8 delivery trucks, 1 delivery truck will access the site during the a.m. peak hour, and 1 deliver truck will access the site during the p.m. peak hour. The remaining 40 haul trucks and 6 delivery trucks will access the site during the off-peak hours of 9:00 a.m. to 4:00 p.m. Employees are expected to arrive at the project site in the morning and leave at the end of the day. For purposes of this analysis, the haul and delivery truck trips were converted to PCE trips at a ratio of 2.5 passenger cars per truck, which is consistent with HCM guidance. Table 4.1-3 provides the project trip generation to and from the project site.

Table 4.1-3: Project Trip Generation Summary

Trip Generation (PCE)	AM Peak Hour		PM Peak Hour		ADT
	In	Out	In	Out	
Staging Areas 1, 2, 3, and 5	44	15	15	44	348
Staging Area 4A (75%)	33	11	11	33	261
Staging Area 4B (25%)	11	4	4	11	87

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
ADT = average daily traffic
PCE = passenger car equivalent

Once the dredge materials have been dried and tested, they will be loaded onto trucks for disposal at an approved landfill. For purposes of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, approximately 15 miles southeast of the Shipyard Sediment Site. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal. It is assumed for the purposes of this PEIR that up to 15 percent of the material will require transport to a hazardous waste facility (a Class I facility), which will most likely be the Kettleman Hills Landfill in Kings County, California, near Bakersfield. Based on the excavation quantity of 143,400 cubic yards (cy) and accounting for an additional 15 percent of bulk material due to the dewatering and treatment process, it is estimated that up to 250 truck trips per week could be required over an approximately 12.5-month period to remove the material. These estimates are a worst-case scenario and will be finalized during the design phase.

The most direct route to Otay Landfill is via I-5 south to State Route 54 (SR-54) east, to I-805 south. The most direct truck route to I-5 south, assumed for the proposed project condition, from potential Staging Areas 1 through 4 would be via East Harbor Drive and 28th Street. Trucks departing from Staging Area 5 would access I-5 south either directly from 24th Street-Bay Marina Drive or from West 32nd Street to 24th Street-Marina Way to Bay Marina Drive. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal.

The trip distribution for employees was determined based on existing counts at the northbound and southbound I-5 ramps. For Staging Areas 1 through 4, approximately 60 percent are destined to go north and 40 percent are destined to go south along I-5. For Staging Area 5, which is also based on the existing traffic split between the northbound and southbound ramps, approximately 35 percent of the trips are destined to go north and 65 percent are destined to go south along I-5. Table 4.1-4 provides the trip distribution of the project traffic within the circulation system for each staging area.

Impacts to Intersections and Roadway Segments. Traffic generated during the dredging-and-haul period was added to the existing traffic volumes at the study area intersections and roadway segments for each staging area to determine the project's effects on the performance of the circulation system, including but not limited to intersections, streets, highways, and freeways. The traffic analysis evaluated the a.m. and p.m. peak-hour intersection LOS, and daily traffic volumes and v/c ratios for the study area roadway segments for the existing plus project traffic conditions.

Table 4.1-4: Project Trip Distribution Summary

Vehicle Type/Direction	Percentage
Delivery/Haul Trucks	
Northbound on I-5	15%
Southbound on I-5	85%
TOTAL	**100%**
Employee Trips (Staging Areas 1–4)	
Northbound on I-5	60%
Southbound on I-5	40%
TOTAL	**100%**
Employee Trips (Staging Area 5)	
Northbound on I-5	35%
Southbound on I-5	65%
TOTAL	**100%**

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
I-5 = Interstate 5

Staging Areas 1 and 2. It is anticipated that Staging Areas 1 and 2 will utilize the same driveway to access the project site (i.e., Cesar E. Chavez Parkway/Harbor Drive). Therefore, the LOS would be identical for both staging areas. Trucks departing from potential Staging Areas 1 and 2 would access I-5 north and south via Harbor Drive and 28th Street. Figure 4.1-4 and Table 4.1-5 summarize the results of the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections.

The existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections for Staging Areas 1 and 2 indicates that all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project, with the exception of the I-5 southbound ramp/Boston Avenue intersection (LOS F during p.m. peak hour). The addition of project traffic will increase the vehicle delay greater than 1 second at this intersection. As such, the project traffic will result in a significant impact at this intersection in the existing plus project condition, based on the City of San Diego's significance criteria.

The existing plus project average daily trips are summarized on Figure 4.1-5 and in Table 4.1-6. Based on the analysis of the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic, with the exceptions of National Avenue between 28th Street and the I-5 northbound ramps (LOS F), and Boston Avenue between 28th Street and the I-5 southbound ramp (LOS F). The addition of project traffic will not increase the v/c ratio greater than 0.01 along National Avenue between 28th Street and the I-5 northbound ramps. Therefore, this impact does not exceed the City's threshold of significance. However, implementation of the project would cause a significant impact for the street segment along Boston Avenue between 28th Street and the I-5 southbound ramp.

Table 4.1-5: Staging Areas 1 and 2 Existing Plus Project Peak-Hour Intersection LOS Summary

	Intersection	Control Type	Existing Condition				Existing Plus Project Condition					
			AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	△	Delay (sec)	LOS	△
1	Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0
2	Cesar E. Chavez Parkway/ Harbor Drive	Signalized	31.4	C	25.8	C	31.5	C	0.1	26.4	C	0.6
3	Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	19.9	B	-0.5	17.0	B	-0.3
4	28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	28.6	C	0.7	23.3	C	1.1
5	28th Street/Main Street	Signalized	30.0	C	33.3	C	29.8	C	-0.2	33.3	C	0.0
6	28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.0	B	-0.4	25.9	C	-0.1
7	28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-
8	28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.6	C	0.3
9	I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B	19.1	B	0.5	19.1	B	0.3
10	I-5 Southbound On-Ramp/ Boston Avenue	Unsignalized	15.2	C	**49.2**	**E**	15.6	C	0.4	**56.3**	**F**	**7.1**

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
■ = Significant Impact
I-5 = Interstate 5
LOS = level of service
sec = seconds

Table 4.1-6: Staging Areas 1 and 2 Existing Plus Project Roadway Segment LOS Summary

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Drive	Park Boulevard and Cesar E. Chavez Parkway	4-Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar E. Chavez Parkway and Sampson Street	4-Lane Major Arterial	40,000	9,140	A	0.23	348	9,488	A	0.24	0.01
	Sampson Street and 28th Street	4-Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4-Lane Major Arterial	40,000	14,240	B	0.36	0	14,240	B	0.36	0.00
28th Street	Harbor Drive and Main Street	4-Lane Major Arterial	40,000	15,231	B	0.38	348	15,579	B	0.39	0.01
	Main Street and Boston Avenue	4-Lane Collector (with TWLT)	30,000	18,454	C	0.62	348	18,802	C	0.63	0.01
	Boston Avenue and National Avenue	3-Lane Collector (with TWLT)	22,500	14,616	C	0.65	213	14,829	C	0.66	0.01
National Avenue	28th Street and I-5 Northbound Ramps	3-Lane Collector (no TWLT)	11,250	**17,691**	**F**	**1.57**	135	**17,826**	**F**	**1.58**	0.01
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2-Lane Collector (no TWLT)	8,000	**8,188**	**F**	**1.02**	135	**8,323**	**F**	**1.04**	0.02

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
■ = Significant Impact
ADT = average daily traffic
I-5 = Interstate 5
LOS = level of service
TWLT = Two-way left-turn lane
V/C = volume-to-capacity (ratio)

Staging Area 3. If Staging Area 3 is selected, it is anticipated that the trucks will utilize the intersection of Sampson Avenue to access Staging Area 3. Trucks departing from potential Staging Area 3 would access I-5 north and south via Harbor Drive and 28th Street. The existing plus project a.m. and p.m. peak-hour trips are summarized on Figure 4.1-6 and in Table 4.1-7. The results of the existing plus project a.m. and p.m. peak-hour LOS analysis indicates that all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project, with the exception of the I-5 southbound ramp/Boston Avenue intersection (LOS F during p.m. peak hour). The addition of project traffic will increase the vehicle delay greater than 1 second at this intersection. As such, the project traffic will result in a significant impact at this intersection in the existing plus project condition based on the City's significance criteria.

The existing plus project average daily trips are summarized on Figure 4.1-7 and in Table 4.1-8. The analysis of daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic indicates that the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic, with the exceptions of National Avenue between 28th Street and the I-5 northbound ramps (LOS F), and Boston Avenue between 28th Street and the I-5 southbound ramp (LOS F). The addition of project traffic will not increase the v/c ratio greater than 0.01 along National Avenue between 28th Street and the I-5 northbound ramps. Therefore this impact at the I-5 northbound ramps does not exceed the City's threshold of significance**.** However, implementation of the project would cause a significant impact along Boston Avenue between 28th Street and the I-5 southbound ramp.

Staging Area 4. Staging Area 4 consists of two existing NASSCO parking lots. The north parking lot is larger than the south lot. To determine the amount of traffic destined for the north and south lots, the project trips were split 75 percent and 25 percent, respectively, based on the size of the two lots. The trips associated with the south lot would access I-5 north and south via Harbor Drive and 28th Street. Before the trips can reach the I-5 ramps, the trips associated with the north lot would have to travel west along Harbor Drive, make a U-turn at the intersection of Sampson Street, then continue east along Harbor Drive and north along 28th Street. The existing plus project a.m. and p.m. peak-hour trips are summarized on Figure 4.1-8 and in Table 4.1-9. The analysis of the existing plus project a.m. and p.m. peak-hour trips indicates that all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project, with the exception of the I-5 southbound ramp/Boston Avenue intersection (LOS F during p.m. peak hour). The addition of project traffic will increase the vehicle delay greater than 1 second at this intersection. As such, the project traffic will result in a significant impact at this intersection in the existing plus project condition, based on the City's significance criteria.

Table 4.1-7: Staging Area 3 Existing Plus Project Peak-Hour Intersection LOS Summary

Intersection		Control Type	Existing Condition				Existing Plus Project Condition					
			AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	△	Delay (sec)	LOS	△
1	Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0
2	Cesar E. Chavez Parkway/ Harbor Drive	Signalized	31.4	C	25.8	C	31.4	C	0.0	25.8	C	0.0
3	Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	21.7	B	1.3	20.4	B	3.1
4	28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	28.6	C	0.7	23.3	C	1.1
5	28th Street/Main Street	Signalized	30.0	C	33.3	C	29.8	C	-0.2	33.3	C	0.0
6	28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.0	B	-0.4	25.9	C	-0.1
7	28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-
8	28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.6	C	0.3
9	I-5 Northbound Ramps/ National Avenue	Signalized	18.6	B	18.8	B	19.1	B	0.5	19.1	B	0.3
10	I-5 Southbound On-Ramp/ Boston Avenue	Unsignalized	15.2	C	**49.2**	**E**	15.6	C	0.4	**56.3**	**F**	**7.1**

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
■ = Significant Impact
I-5 = Interstate 5
LOS = level of service
sec = seconds

Table 4.1-8: Staging Area 3 Existing Plus Project Roadway Segment LOS Summary

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Drive	Park Boulevard and Cesar E. Chavez Parkway	4-Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar E. Chavez Parkway and Sampson Street	4-Lane Major Arterial	40,000	9,140	A	0.23	0	9,140	A	0.23	0.00
	Sampson Street and 28th Street	4-Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4-Lane Major Arterial	40,000	14,240	B	0.36	0	14,240	B	0.36	0.00
28th Street	Harbor Drive and Main Street	4-Lane Major Arterial	40,000	15,231	B	0.38	348	15,579	B	0.39	0.01
	Main Street and Boston Avenue	4-Lane Collector (with TWLT)	30,000	18,454	C	0.62	348	18,802	C	0.63	0.01
	Boston Avenue and National Avenue	3-Lane Collector (with TWLT)	22,500	14,616	C	0.65	213	14,829	C	0.66	0.01
National Avenue	28th Street and I-5 Northbound Ramps	3-Lane Collector (no TWLT)	11,250	**17,691**	**F**	**1.57**	135	**17,826**	**F**	**1.58**	0.01
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2-Lane Collector (no TWLT)	8,000	**8,188**	**F**	**1.02**	135	**8,323**	**F**	**1.04**	0.02

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ =Delta, or difference
□ = Exceeds LOS Criteria
■ = Significant Impact
ADT = average daily traffic
I-5 = Interstate 5
LOS = level of service
TWLT = Two-way left-turn lane
V/C = volume-to-capacity (ratio)

Table 4.1-9: Staging Area 4 Existing Plus Project Peak-Hour Intersection LOS Summary

	Intersection	Control Type	Existing Condition				Existing Plus Project Condition					
			AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	△	Delay (sec)	LOS	△
1	Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0
2	Cesar E. Chavez Parkway/ Harbor Drive	Signalized	31.4	C	25.8	C	31.4	C	0.0	25.8	C	0.0
3	Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	20.8	B	0.4	19.5	B	2.2
4	28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	28.6	C	0.7	23.2	C	1.0
5	28th Street/Main Street	Signalized	30.0	C	33.3	C	29.8	C	-0.2	33.3	C	0.0
6	28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.0	B	-0.4	25.9	C	-0.1
7	28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-
8	28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.6	C	0.3
9	I-5 Northbound Ramps/ National Avenue	Signalized	18.6	B	18.8	B	19.1	B	0.5	19.1	B	0.3
10	I-5 Southbound On-Ramp/ Boston Avenue	Unsignalized	15.2	C	**49.2**	**E**	15.6	C	0.4	**56.3**	**F**	**7.1**

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
■ = Significant Impact
I-5 = Interstate 5
LOS = level of service
sec = seconds

The existing plus project average daily trips are summarized on Figure 4.1-9 and in Table 4.1-10. The analysis of daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic indicates that the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic, with the exceptions of National Avenue between 28th Street and the I-5 northbound ramps (LOS F), and Boston Avenue between 28th Street and the I-5 southbound ramp (LOS F). The addition of project traffic will not increase the v/c ratio greater than 0.01 along National Avenue between 28th Street and the I-5 northbound ramps. Therefore this impact at the I-5 northbound ramps does not exceed the City's threshold of significance. However, implementation of the project would result in a significant impact along Boston Avenue between 28th Street and the I-5 southbound ramp.

Staging Area 5. If Staging Area 5 in National City were to be selected, it is anticipated that the truck traffic would utilize the intersections of Tidelands Avenue/24th Street and Tidelands Avenue/West 32nd Street to access the staging area. Trucks departing from potential Staging Area 5 would access I-5 north and south either directly from 24th Street-Bay Marina Drive or from West 32nd Street to 24th Street-Marina Way to Bay Marina Drive. The existing plus project a.m. and p.m. peak-hour trips are summarized on Figure 4.1-10 and in Table 4.1-11. The results of the existing plus project a.m. and p.m. peak-hour LOS analysis indicates that all study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour with implementation of the proposed project. Therefore, the intersection impacts associated with Staging Area 5 are less than significant.

The existing plus project average daily trips is summarized on Figure 4.1-11 and in Table 4.1-12. The analysis of the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic indicates that the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the addition of project traffic. Therefore, the roadway segment impacts associated with Staging Area 5 are less than significant.

In summary, with the implementation of project traffic for Staging Areas 1 through 4, significant impacts are forecast at the I-5 southbound ramp/Boston Avenue intersection and the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp. The Draft Barrio Logan/Harbor 101 Community Plan Update (Draft CPU) (March 2011) acknowledges that the I-5 southbound ramp/Boston Avenue intersection currently operates at unacceptable LOS (LOS F during p.m. peak hour). The Draft CPU recommends the signalization of this intersection as a long-term solution. The Draft CPU also acknowledges that the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp currently operates at LOS F. The Draft CPU indicates that the community has

Table 4.1-10: Staging Area 4 Existing Plus Project Roadway Segment LOS Summary

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Drive	Park Boulevard and Cesar E. Chavez Parkway	4-Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar E. Chavez Parkway and Sampson Street	4-Lane Major Arterial	40,000	9,140	A	0.23	0	9,140	A	0.23	0.00
	Sampson Street and 28th Street	4-Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4-Lane Major Arterial	40,000	14,240	B	0.36	0	14,240	B	0.36	0.00
28th Street	Harbor Drive and Main Street	4-Lane Major Arterial	40,000	15,231	B	0.38	348	15,579	B	0.39	0.01
	Main Street and Boston Avenue	4-Lane Collector (with TWLT)	30,000	18,454	C	0.62	348	18,802	C	0.63	0.01
	Boston Avenue and National Avenue	3-Lane Collector (with TWLT)	22,500	14,616	C	0.65	213	14,829	C	0.66	0.01
National Avenue	28th Street and I-5 Northbound Ramps	3-Lane Collector (no TWLT)	11,250	**17,691**	**F**	**1.57**	135	**17,826**	**F**	**1.58**	0.01
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2-Lane Collector (no TWLT)	8,000	**8,188**	**F**	**1.02**	135	**8,323**	**F**	**1.04**	0.02

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
■ = Significant Impact
ADT = average daily traffic
I-5 = Interstate 5
LOS = level of service
TWLT = Two-way left-turn lane
V/C = volume-to-capacity (ratio)

Table 4.1-11: Staging Area 5 Existing Plus Project Peak-Hour Intersection LOS Summary

	Intersection	Control Type	Existing Condition				Existing Plus Project Condition					
			AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	△	Delay (sec)	LOS	△
11	I-5 Northbound Ramps/24th Street	Signalized	25.3	C	22.3	C	25.5	C	0.2	22.9	C	0.6
12	I-5 Southbound Ramps/24th Street	Signalized	23.5	C	27.7	C	23.4	C	-0.1	28.0	C	0.3
13	Cleveland Avenue/24th Street	Unsignalized	8.9	A	10.0	B	9.2	A	0.3	10.3	B	0.3
14	West 32nd Street/24th Street	Signalized	11.3	B	19.2	B	11.9	B	0.6	20.7	C	1.5
15	Tidelands Avenue/24th Street	Signalized	26.4	C	29.9	B	24.5	C	-1.9	28.7	C	-1.2
16	Tidelands Avenue/West 32nd Street	Unsignalized	7.3	A	8.0	A	7.3	A	0.0	7.9	A	-0.1

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
I-5 = Interstate 5
LOS = level of service
sec = seconds

Table 4.1-12: Staging Area 5 Existing Plus Project Roadway Segment LOS Summary

Roadway	Segment	Roadway Classification	Capacity	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
24th Street	I-5 Northbound Ramps and I-5 Southbound Ramps	4-Lane Major Arterial	40,000	16,716	B	0.42	174	12,903	B	0.42	0.00
	I-5 Southbound Ramps and Cleveland Avenue	4-Lane Major Arterial	40,000	9,397	A	0.23	348	9,745	A	0.24	0.01
	Cleveland Avenue and West 32nd Street	4-Lane Major Arterial	40,000	6,292	A	0.16	348	6,640	A	0.17	0.01
	West 32nd Street and Tidelands Avenue	4-Lane Collector (no TWLT)	20,000	3,846	A	0.19	261	4,107	A	0.21	0.01
West 32nd Street	24th Street and Tidelands Avenue	2-Lane Collector	10,000	1,002	A	0.10	87	1,089	A	0.11	0.01
Tidelands Avenue	24th Street and West 32nd Street	2-Lane Collector	10,000	1,154	A	0.12	0	1,154	A	0.12	0.00

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
ADT = average daily traffic
I-5 = Interstate 5
LOS = level of service
TWLT = Two-way left-turn lane
V/C = volume-to-capacity (ratio)

identified the desire to improve Boston Avenue to make it more pedestrian- and bicycle-friendly. Therefore, the widening of this roadway to improve vehicular circulation was not desired by the community and is not recommended in the Draft CPU. As a result, the vehicular operations along this facility could be congested during peak periods and vehicular speeds would be low.

The proposed project is the temporary dredge and haul of sediment. Although a traffic signal is planned for the I-5 southbound ramp/Boston Avenue intersection, implementation of the planned traffic signal is not expected to occur during the dredging period. Therefore, a fair share project contribution toward this signal would not reduce the project impact. For these reasons a fair share project contribution to the planned but not yet programmed traffic signal is not a feasible mitigation measure. Therefore, the San Diego Water Board considered two alternative mitigation measures to reduce this impact.

The first alternative mitigation measure studied is the diversion of 15 percent of the dredged sediment to an ocean disposal site. Such diversion would reduce the number of truck trips generated by the proposed project. A traffic sensitivity analysis was conducted, and the results indicated that, because of the existing traffic conditions which already exceed the City's thresholds at the intersection, a 15 percent reduction in project trips would not be sufficient to reduce the impact to less than significant. Also, it is noted that ocean disposal has not been approved by the San Diego Water Board at this time. Since this alternative measure involved a form of disposal that is not approved at this time and this measure would not reduce the project impact to less than significant, the San Diego Water Board has rejected the contemplated ocean disposal mitigation measure as infeasible.

The second alternative mitigation measure studied is the use of an alternative truck route to I-5. Although 28th Street/Boston Avenue was identified as the most common and convenient route by the shipyards, consideration of an alternative route is appropriate due to the significant project impacts at the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp, and the I-5 southbound ramp/Boston Avenue intersection. Therefore, re-routing project haul traffic from Staging Areas 1 through 4 along Harbor Drive to the I-5 northbound and southbound ramps at Civic Center Drive was analyzed as a potential mitigation measure.

Traffic generated during the haul period was added to the existing traffic volumes at the study area intersections and roadway segments for the mitigation route scenario. Trucks departing from potential Staging Areas 1 through 4 that are headed to I-5 north (destined for the Kettleman Landfill) would travel via Harbor Drive and 28th Street. Trucks headed to I-5 south (destined for the Otay Landfill) would travel via Harbor Drive and Civic Center Drive.

Table 4.1-13 summarizes the results of the existing plus project a.m. and p.m. peak-hour LOS analysis. As Table 4.1-13 indicates, the study area intersections will continue to operate at an acceptable LOS (D or better) in the a.m. and p.m. peak hour, with the exception of the

I-5 southbound ramp/Boston Avenue intersection (LOS E during p.m. peak hour). However, this intersection currently operates at LOS E during the p.m. peak hour, and the addition of project traffic will not increase the vehicle delay greater than 1 second at this intersection. As such, the project traffic for the mitigation route scenario will not create a significant impact at this intersection in the existing plus project condition, based on the City's significance criteria.

Table 4.1-14 summarizes the daily traffic volumes and v/c ratios for the study area roadway segments in the existing condition with the addition of project traffic. Based on this analysis, the roadway segments are forecast to operate at an acceptable LOS (LOS D or better) with the exception of National Avenue between 28th Street and the I-5 northbound ramps (LOS F), and Boston Avenue between 28th Street and the I-5 southbound ramp (LOS F). However, these roadway segments are currently operating at a deficient LOS, and the addition of project traffic will not increase the v/c ratio greater than 0.01 along both segments. As such, the project traffic for the mitigation route scenario will not create a significant impact at either location, based on the City's significance criteria.

Therefore, no significant impacts would result from implementation of the mitigation route. The anticipated haul, delivery, and employee traffic to and from the project site can be accommodated without causing a significant impact for the mitigation route, based on the existing traffic conditions in the study area. Evaluation of the intersection and roadway LOS shows that the addition of the project's traffic to the existing traffic volumes will not cause a significant increase in delay at the study area intersections or an increase in v/c ratio on the roadway segments, according to the City's performance criteria.

This alternative route would avoid the significant impacts at the I-5 southbound ramp/Boston Avenue intersection and the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp. (Please see Mitigation Measure 4.1.1.) With implementation of Mitigation Measure 4.1.1, the traffic impacts to the study area intersections and roadway segments for each staging area will be reduced to less than significant (Threshold 4.1.1).

Bayshore Bikeway. The Bayshore Bikeway Plan was adopted by SANDAG in 2006 to identify opportunities to improve the 24-mile bicycle facility around San Diego Bay, particularly along the east side of the bay. Approximately 13 miles of bicycle paths are currently in use on the Bayshore Bikeway. The remainder of the facility consists of on-street sections designated as either bicycle lanes or bicycle routes. SANDAG is planning and implementing additional improvements to improve the bikeway along the east side of the bay. The next stage of the project would extend the bike path north along the east side of San Diego Bay through Chula Vista and National City.

Table 4.1-13: Staging Areas 1 and 2 Existing Plus Project Peak-Hour Intersection LOS Summary

	Intersection	Control Type	Existing Condition				Existing Plus Project Condition					
			AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	△	Delay (sec)	LOS	△
1	Park Boulevard/Harbor Drive	Signalized	15.0	B	13.9	B	15.0	B	0.0	13.9	B	0.0
2	Cesar E. Chavez Parkway/ Harbor Drive	Signalized	31.4	C	25.8	C	31.5	C	0.1	26.4	C	0.6
3	Sampson Street/Harbor Drive	Signalized	20.4	C	17.3	B	19.9	B	-0.5	17.0	B	-0.3
4	28th Street/Harbor Drive	Signalized	27.9	C	22.2	C	27.8	C	-0.1	22.4	C	0.2
5	28th Street/Main Street	Signalized	30.0	C	33.3	C	29.9	C	-0.1	33.3	C	0.0
6	28th Street/Boston Avenue	Signalized	18.4	B	26.0	C	18.2	B	-0.2	25.9	C	-0.1
7	28th Street/I-5 Southbound Off-Ramp	No Control	-	-	-	-	-	-	-	-	-	-
8	28th Street/National Avenue	Signalized	33.7	C	31.3	C	33.7	C	0.0	31.3	C	0.0
9	I-5 Northbound Ramps/National Avenue	Signalized	18.6	B	18.8	B	18.6	B	0.0	18.8	B	0.0
10	I-5 Southbound On-Ramp/Boston Avenue	Unsignalized	15.2	C	49.2	E	15.2	C	0.0	49.2	E	0.0
17	32nd Street/Harbor Drive	Signalized	28.1	C	34.6	C	28.3	C	0.2	34.4	C	-0.2
18	8th Street/Harbor Drive	Signalized	24.4	C	27.2	C	24.3	C	-0.1	27.3	C	0.1
19	Civic Center Drive/Harbor Drive	Signalized	33.2	C	33.7	C	34.5	C	1.3	37.4	D	3.7

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
I-5 = Interstate 5
LOS = level of service
sec = seconds

Table 4.1-14: Staging Areas 1 and 2 Existing Plus Project Roadway Segment LOS Summary

Roadway	Segment	Roadway Classification	Capacity at LOS E	Existing			Project ADT	Existing + Project			
				Volume	LOS	V/C		Volume	LOS	V/C	△
Harbor Drive	Park Boulevard and Cesar E. Chavez Parkway	4-Lane Major Arterial	40,000	12,903	A	0.32	0	12,903	A	0.32	0.00
	Cesar E. Chavez Parkway and Sampson Street	4-Lane Major Arterial	40,000	9,140	A	0.23	348	9,488	A	0.24	0.01
	Sampson Street and 28th Street	4-Lane Major Arterial	40,000	10,085	A	0.25	348	10,433	A	0.26	0.01
	28th Street and 32nd Street	4-Lane Major Arterial	40,000	14,240	B	0.36	270	14,510	B	0.36	0.01
	32nd Street and 8th Street	4-Lane Major Arterial	40,000	16,055	B	0.40	270	16,325	B	0.41	
	8th Street and Civic Center Drive	4-Lane Major Arterial	40,000	12,921	A	0.32	270	13,191	A	0.33	
28th Street	Harbor Drive and Main Street	4-Lane Major Arterial	40,000	15,231	B	0.38	78	15,309	B	0.38	0.00
	Main Street and Boston Avenue	4-Lane Collector (with TWLT)	30,000	18,454	C	0.62	78	18,532	C	0.62	0.00
	Boston Avenue and National Avenue	3-Lane Collector (with TWLT)	22,500	14,616	C	0.65	78	14,694	C	0.65	0.00
National Avenue	28th Street and I-5 Northbound Ramps	3-Lane Collector (no TWLT)	11,250	**17,691**	**F**	**1.57**	0	**17,691**	**F**	**1.57**	0.00
Boston Avenue	28th Street and I-5 Southbound On-Ramp	2-Lane Collector (no TWLT)	8,000	**8,188**	**F**	**1.02**	0	**8,188**	**F**	**1.02**	0.00

Source: *Traffic Impact Analysis* (LSA Associates, Inc., May 2011).
△ = Delta, or difference
□ = Exceeds LOS Criteria
ADT = average daily traffic
I-5 = Interstate 5
LOS = level of service
TWLT = Two-way left-turn lane
V/C = volume-to-capacity (ratio)

The Bayshore Bikeway in the vicinity of the proposed project consists of an existing on-street bike lane along Harbor Drive near or adjacent to potential Staging Areas 1 through 4 (Bikeway Segments 2 through 4 as identified in the Bayshore Bikeway Plan) and a proposed new bike path alignment along Tidelands Avenue and 32nd Street through potential Staging Area 5 (Bikeway Segment 5 as identified in the Bayshore Bikeway Plan).

The roadway segment analysis summarized above supports a conclusion that Harbor Drive and Tidelands Avenue will operate at acceptable LOS (LOS D or better) with implementation of the proposed project. Therefore, existing bike safety and bike routes would not be significantly affected with the addition of project traffic for the duration of the dredge-and-removal activity. No bike route detours or other mitigation are warranted for the portion of the Bayshore Bikeway on Harbor Drive as a result of the project.

Staging Area 5 comprises the 24th Street Marine Terminal and adjacent parking lots. Bayshore Bikeway Segment 5 is a proposed new bike path alignment along Tidelands Avenue and 32nd Street through the 24th Street Marine Terminal. The proposed new bike path alignment along Tidelands Avenue and 32nd Street is currently being implemented by SANDAG. The design of Segment 5 is approximately 75 percent complete, and the project is fully funded through construction. Under the current schedule assumptions, SANDAG expects to award a construction contract by June 2012 and complete the Bayshore Bikeway Segment 5 project by December 2012.[1]

Therefore, it is possible that Bayshore Bikeway Segment 5 will be implemented prior to or during the active dredge period, and there is the potential for project-related tuck trips to interfere with the implementation and/or operation of the bikeway. However, only several acres of the approximately 145-acre site would be necessary for the dewatering and treatment of the removed sediment. In addition, it is anticipated that the location of the dewatering and treatment activity within the 24th Street Marine Terminal would be close to San Diego Bay or Sweetwater Channel for ease of sediment transport from barge to shore. Therefore, it is anticipated that the relatively small area needed for the dewatering and treatment could be located in such a way as to not interfere with the proposed bikeway in either the physical configuration of the site or in the routing of trucks to and from the site. In addition, it is noted that the 24th Street Marine Terminal is currently used for marine industrial purposes, and there is existing truck traffic on Tidelands Avenue. Should Staging Area 5 be selected, the proposed project would add approximately 348 PCE trips per day for the duration of the dredging activity. However, mitigation is incorporated to ensure that the respective Lead Agencies coordinate the haul activity and bikeway implementation to ensure that impacts to the Bayshore Bikeway are avoided; see Mitigation Measure 4.1.2. See also Mitigation Measure 4.5.10, which identifies the western and northern portions of Staging Area 5 as the preferred location for dewatering and treatment.

[1] Email communication, Stephan Vance, Senior Regional Planner, SANDAG, May 13, 2011.

The proposed project has the potential to conflict with an adopted plan that supports alternative transportation (Threshold 4.1.6) and that takes into account non-motorized travel (Threshold 4.1.1), specifically the Bayshore Bikeway Plan. However, the proposed project results in a less than significant impact to the Bayshore Bikeway with mitigation incorporated (Mitigation Measure 4.1.2).

Construction Parking. Currently, parking near the shipyards during the workday is constrained. Many employees currently commute via trolley or shuttle bus. Staging Areas 3 and 4 are areas currently used for shipyard commuter parking. If ship building and repair activities were to occur concurrently with the dewatering and on-shore treatment on either Staging Area 3 or 4, it is anticipated there will be a parking shortage for shipyard employees. Similarly, portions of Staging Areas 1 and 2 are also used for parking for the 10th Avenue Marine Terminal and other workers. If these areas were used for the dewatering and treatment of sediment, the displacement of parking could result in a shortage of parking needed for employees in these areas.

Currently, there is a high level of participation in transit and other alternative transportation modes by shipyard workers (i.e., approximately 30 percent). Based on this high level of participation, it is anticipated there may not be sufficient elasticity in the provision of/demand for transit services to accommodate a substantial increase in alternative modes/reductions in vehicle use by shipyard/project employees. Therefore, increased transit use is not considered to be a feasible mitigation measure in order to reduce parking demand.[1] Mitigation Measure 4.1.3 requires that, should one or more of Staging Areas 1 through 4 be selected, the San Diego Water Board, in consultation with the San Diego Unified Port District (Port District), the shipyards, and the City of San Diego, would prepare a Parking Management Plan (PMP) to identify appropriate substitute parking areas, shuttles, and commuter routes, as necessary, to meet the need created by the short-term loss of employee parking spaces. The need for off-site parking will be based on anticipated net daily employment during the dredge period (which may be reduced compared to existing conditions as a result of the dredge activity displacing some ship building/repair activity), and the loss of parking in the selected staging area. Mitigation Measure 4.1.3 is proposed to ensure that the potential short-term parking loss impact during the dredge activity is reduced to less than significant.

The proposed project was analyzed for potential traffic impacts resulting from the dredge, treatment, and removal activities. No long-term changes in existing land use or shipyard operations are proposed as part of the sediment removal project. Therefore, no long-term

[1] Approximately one-third of the 3,200 NASSCO employees use some form of alternative transportation to commute to work each day, including shuttle buses, vanpools, and trolley. Source: http://www.portofsandiego.org/environment/2549-nassco-shipyard-setting-green-trends.html, accessed May 13, 2011.

changes to parking conditions would occur as a result of the project. Furthermore, Mitigation Measures 4.3.8 and 4.6.1 require a construction traffic control plan.

Environmental Justice. The proposed project impacts related to traffic are reduced to less than significant with implementation of an alternative haul route. There are residences along a portion of the proposed project haul route; however, there are no residences immediately adjacent to the mitigation haul route. Therefore, although there is a high percentage of low-income and minority population in the project study area, the proposed project traffic impacts are less than significant with mitigation incorporated, and implementation of the mitigation haul routes would not result in disproportionately high and adverse health or environmental impacts to minority and low-income populations.

4.1.4.3 Mitigation Measures

Mitigation Measure 4.1.1: Should one or more of Staging Areas 1 through 4 be selected, the contractor shall require, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify, that the project-related truck traffic is routed on Harbor Drive (southbound) to the Civic Center Drive access to Interstate 5 (I-5) for the duration of the dredge-and-haul activity. Haul, delivery, and employee traffic shall be discouraged at the I-5 southbound ramp/Boston Avenue intersection and on the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp.

Mitigation Measure 4.1.2: Should Staging Area 5 be selected, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall consult with the San Diego Association of Governments (SANDAG) and the San Diego Unified Port District (Port District) on the implementation status of Segment 5 of the Bayshore Bikeway in order to locate the staging activity away from the planned bike path. The consultation shall include information regarding the specific location, configuration, and operation of the temporary staging area, as well as appropriate bikeway safety and access considerations. If Staging Area 5 is selected, the contractor shall implement the staging area as agreed to by the agencies.

Mitigation Measure 4.1.3: Should one or more of Staging Areas 1 through 4 be selected, the responsible parties, in consultation with the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), San Diego Unified Port District (Port

District), and City of San Diego, shall prepare a Parking Management Plan (PMP) to identify appropriate substitute parking areas, shuttles, and commuter routes, as necessary, to meet the need created by the short-term loss of employee parking spaces. The need for off-site parking shall be based on anticipated employment during the dredge period (which may be reduced compared to existing conditions as a result of the dredge activity displacing some ship building/repair activity), and the loss of parking in the selected staging area. The PMP shall be approved by the City of San Diego Traffic Engineer prior to the initiation of dredging, and its implementation shall be verified by the San Diego Water Board.

4.1.5 Cumulative Impacts

The evaluation of potential cumulative impacts of this project with other projects in and around San Diego Bay is the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Although there are no other sediment remediation dredging projects currently scheduled for implementation in San Diego Bay, the San Diego Water Board anticipates that several other dredging projects may occur in San Diego Bay over the next 10 years. However, the location and timing of future dredging and staging activity is not known. Mitigation Measure 4.2.14 in Section 4.2, Water Quality, requires that the San Diego Water Board coordinate future dredging activities, particularly those that may overlap temporally. Maintenance dredging projects in the San Diego Bay do not typically occur simultaneously, and based on this experience combined with implementation of mitigation measure 4.2.14, dredging projects in the Bay would not contribute to a cumulative traffic impacts.

The San Diego Unified Port website identifies several key Port District projects to be implemented over the next several years[1] (see below). (See Section 4.0 for more detail.) The proposed Shipyard Sediment Remediation Project has the potential to contribute to cumulative effects if it were to occur during the same time period as construction of other short-term projects in the Port District. The key projects identified on the Port's website include:

- North Embarcadero Visionary Plan
- San Diego Convention Center Expansion
- Chula Vista Bayfront Master Plan
- Ruocco Park

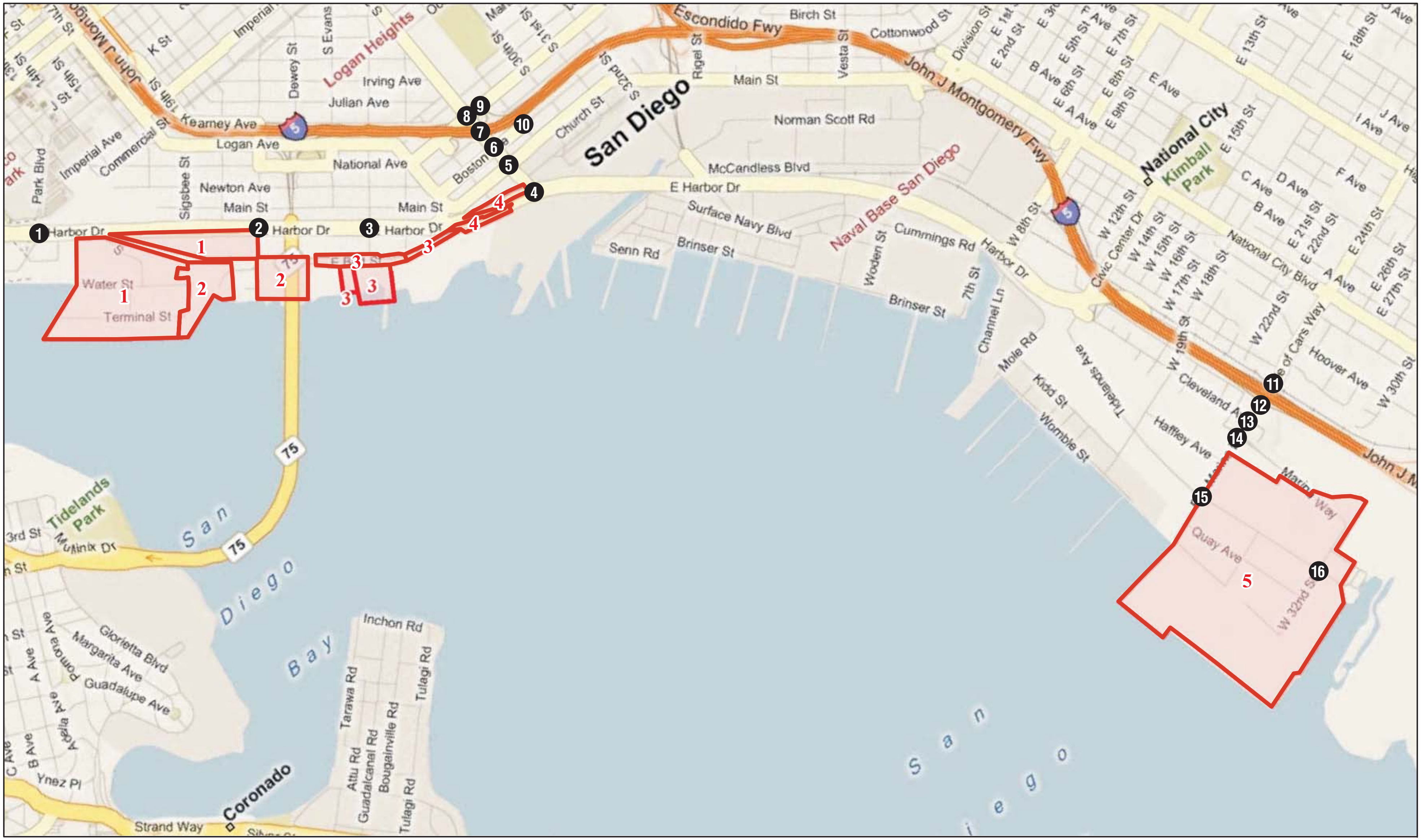
[1] Source: http://www.portofsandiego.org/, accessed May 11, 2011.

- Lane Field
- Old Police Headquarters (OPH) and Park Project
- Commercial Fisheries Revitalization Plan

All of these Port projects, with the exception of the Chula Vista Bayfront Master Plan, are located north of the shipyards, and construction traffic for these projects would not utilize Harbor Drive south to access I-5 at Civic Center Drive (the proposed project mitigation route). The Chula Vista Bayfront Master Plan is located approximately 1.5 miles south of Staging Area 5, and, similarly, its construction traffic would not access I-5 at Bay Marina Drive. Therefore, even if construction of one or more of these projects is underway at the same time the proposed project is being implemented, the traffic related to construction activities from these projects would not overlap the haul route for the proposed project on the local street network. Therefore, the proposed project's incremental contribution to cumulative construction traffic is considered to be less than significant.

4.1.6 Significant Unavoidable Adverse Impacts

Implementation of Mitigation Measures 4.1.1 through 4.1.3 will ensure that project traffic impacts are reduced to a less than significant level. In addition, Mitigation Measure 4.2.14 would reduce cumulative construction traffic impacts to a less than significant level. All other traffic and circulation impacts are considered less than significant. No significant unavoidable adverse impacts have been identified.



LSA

FIGURE 4.1-1

LEGEND

Potential Sediment Staging Areas

Study Area Intersection

0 1250 2500

FEET

SOURCE: Bing Maps (2008)

Shipyard Sediment Remediation Project

Existing Circulation System

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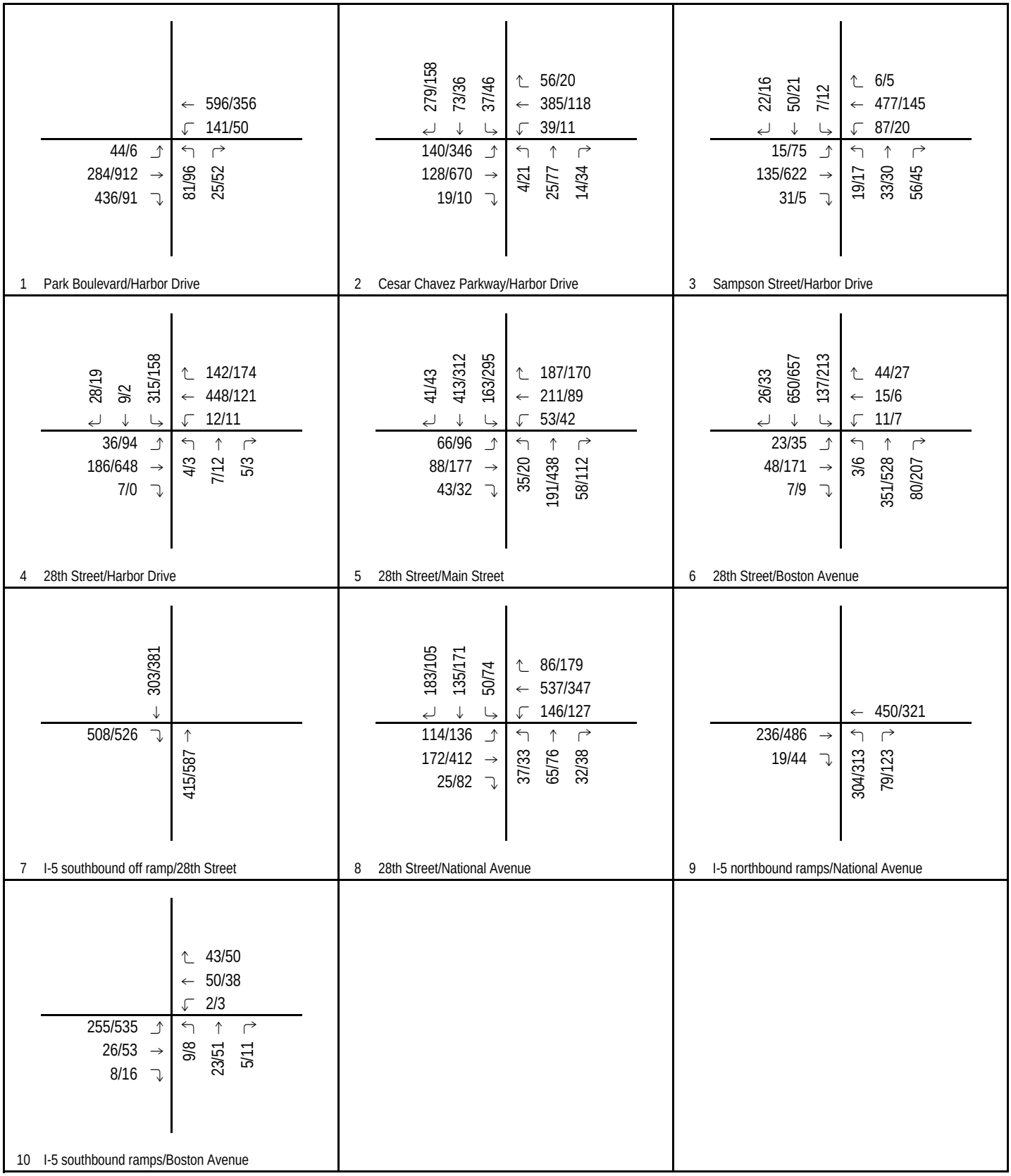

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FIGURE 4.1-2A

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project

Existing Peak Hour Intersection Traffic Volumes (City of San Diego Locations)

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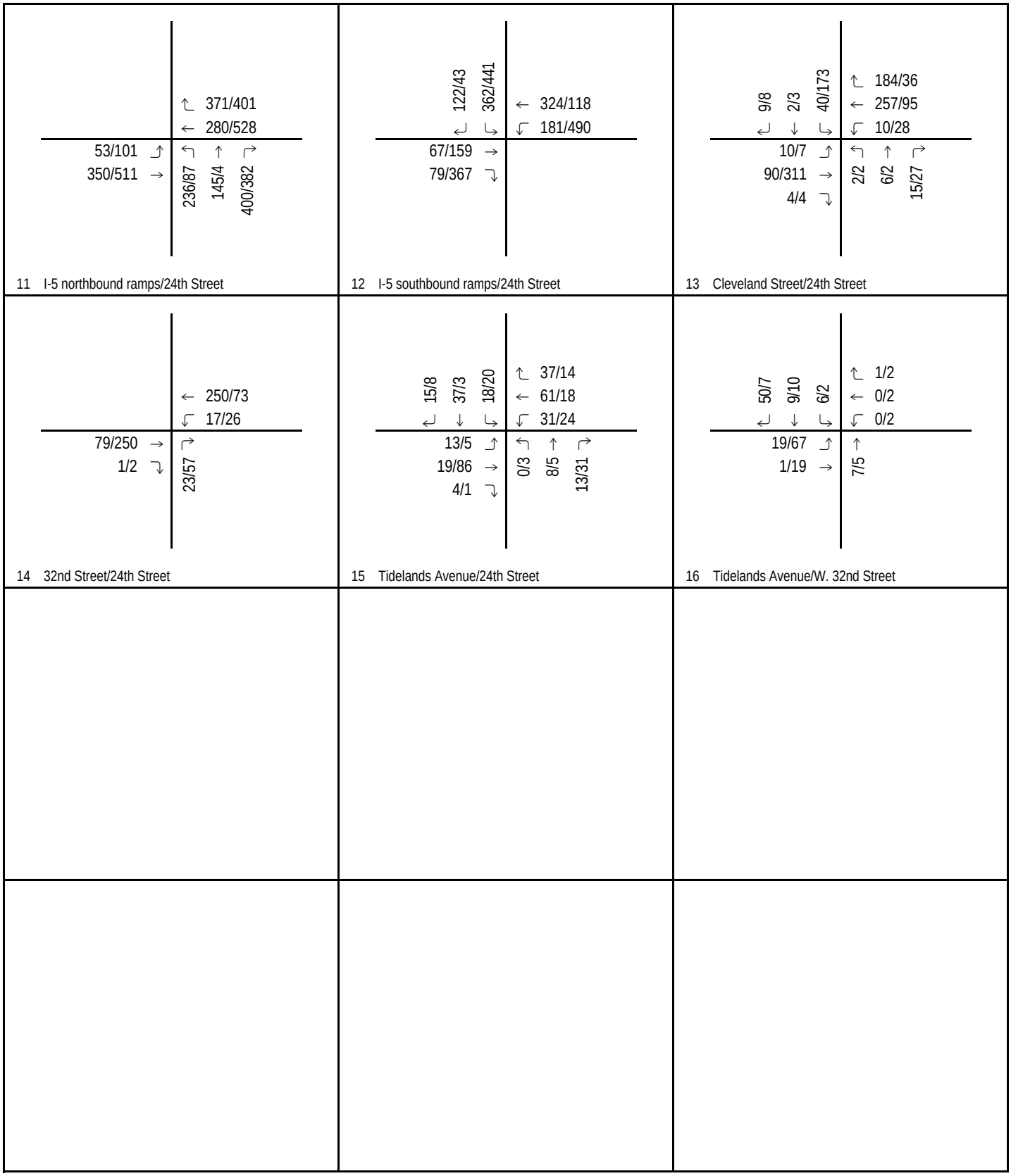

LSA

FIGURE 4.1-2B

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project

Existing Peak Hour Intersection Traffic Volumes (City of National City Locations)

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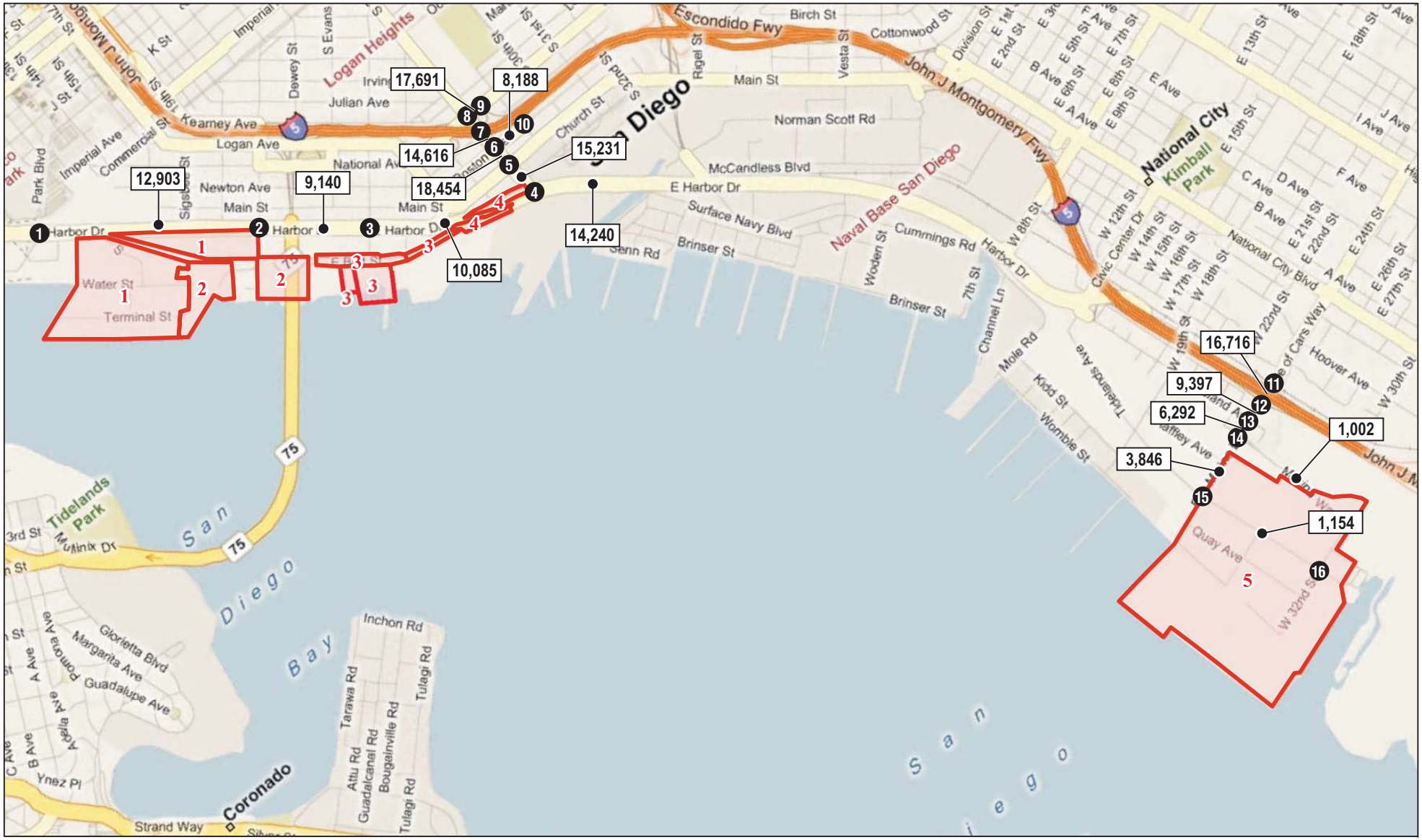

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FIGURE 4.1-3

LEGEND

Potential Sediment Staging Areas

4 Study Area Intersection

X,XXX Average Daily Traffic Volume

0 1250 2500

FEET

SOURCE: Bing Maps (2008)

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Shipyard Sediment Remediation Project

Existing Average Daily Trips in Study Area

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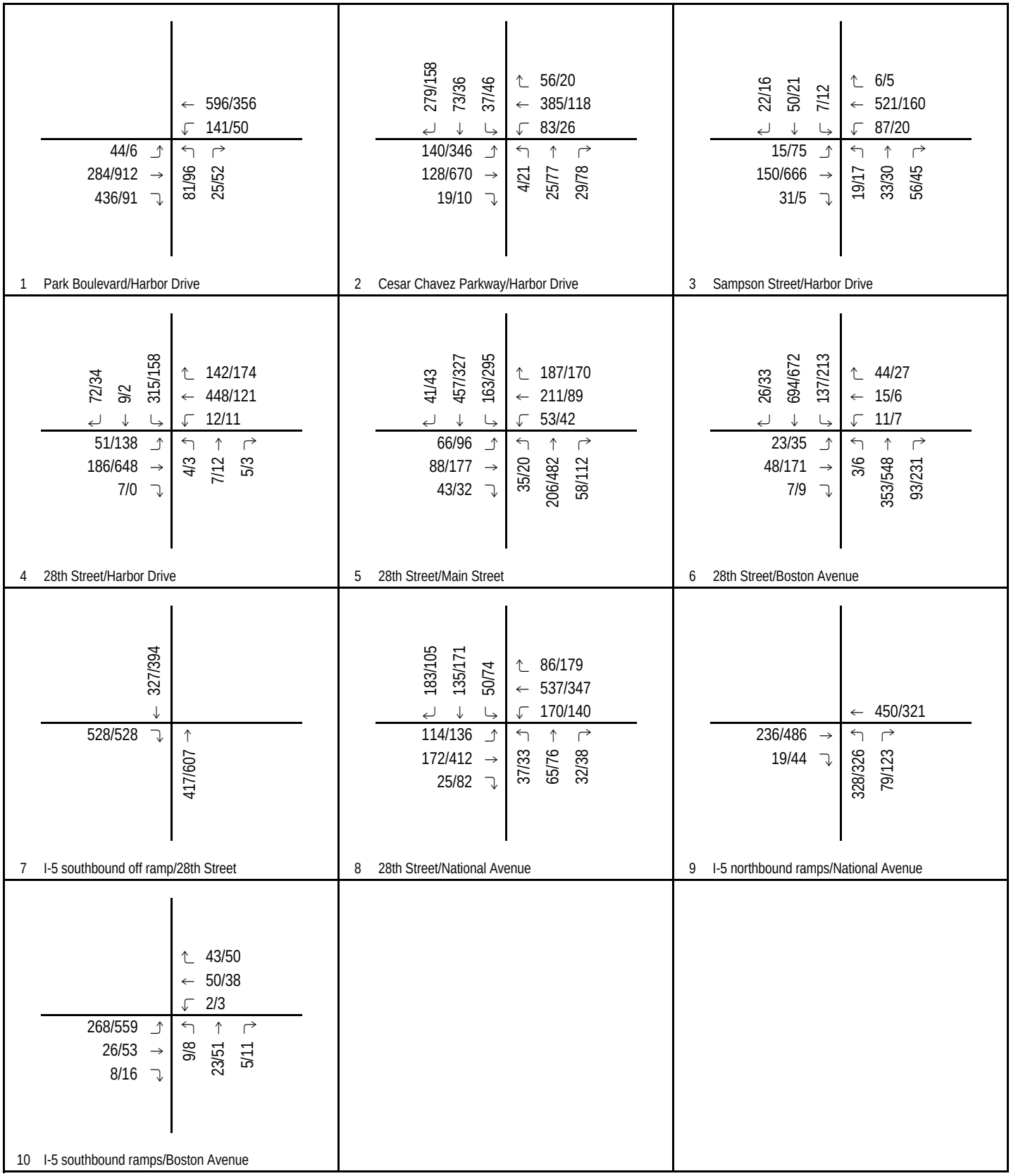

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FIGURE 4.1-4

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project

Existing + Project Peak Hour Intersection Traffic Volumes (Staging Areas 1 & 2)

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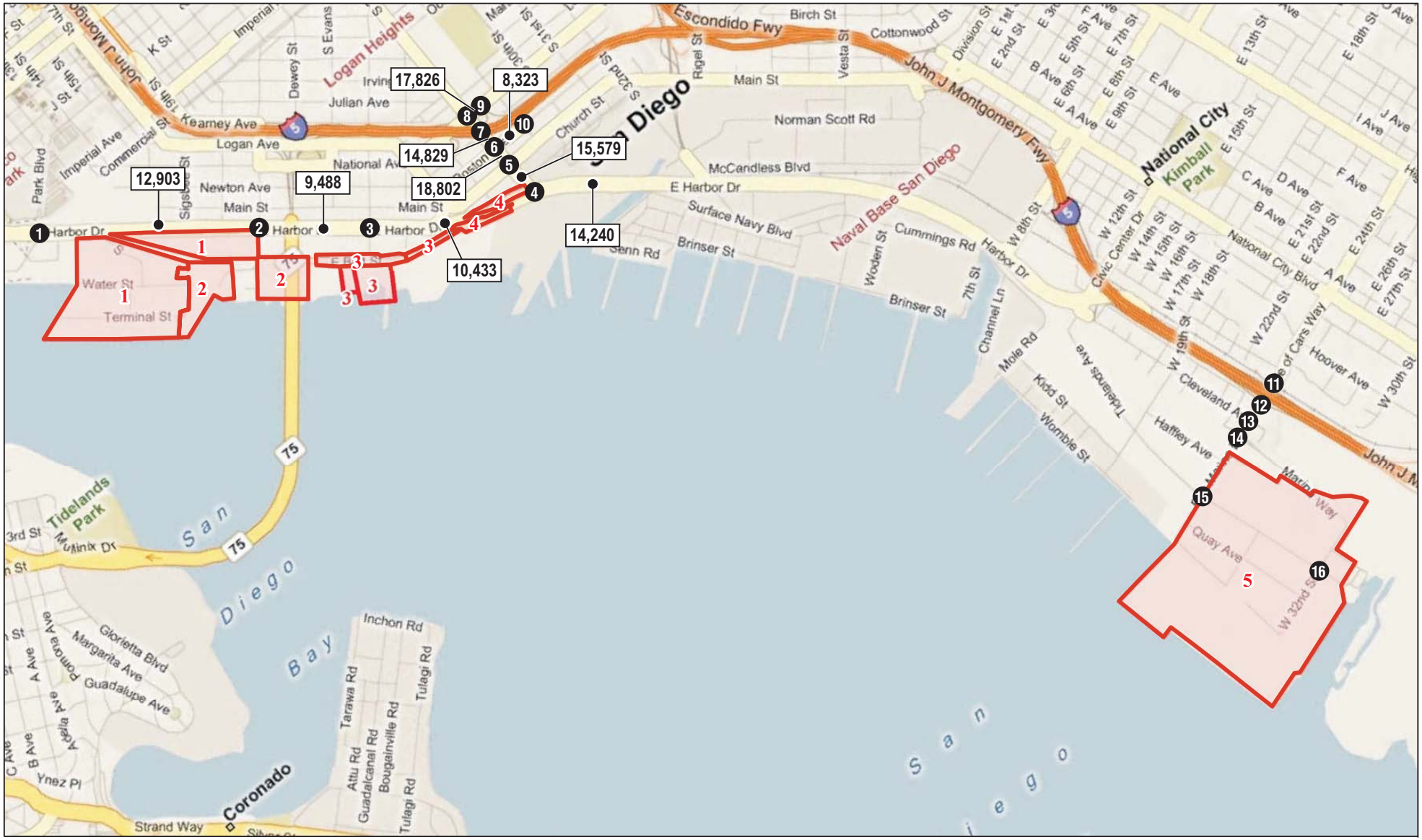

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LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume

0 1250 2500
FEET

SOURCE: Bing Maps (2008)

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FIGURE 4.1-5

Shipyard Sediment Remediation Project

Existing Plus Project Average Daily Traffic Volumes
Staging Areas 1 and 2

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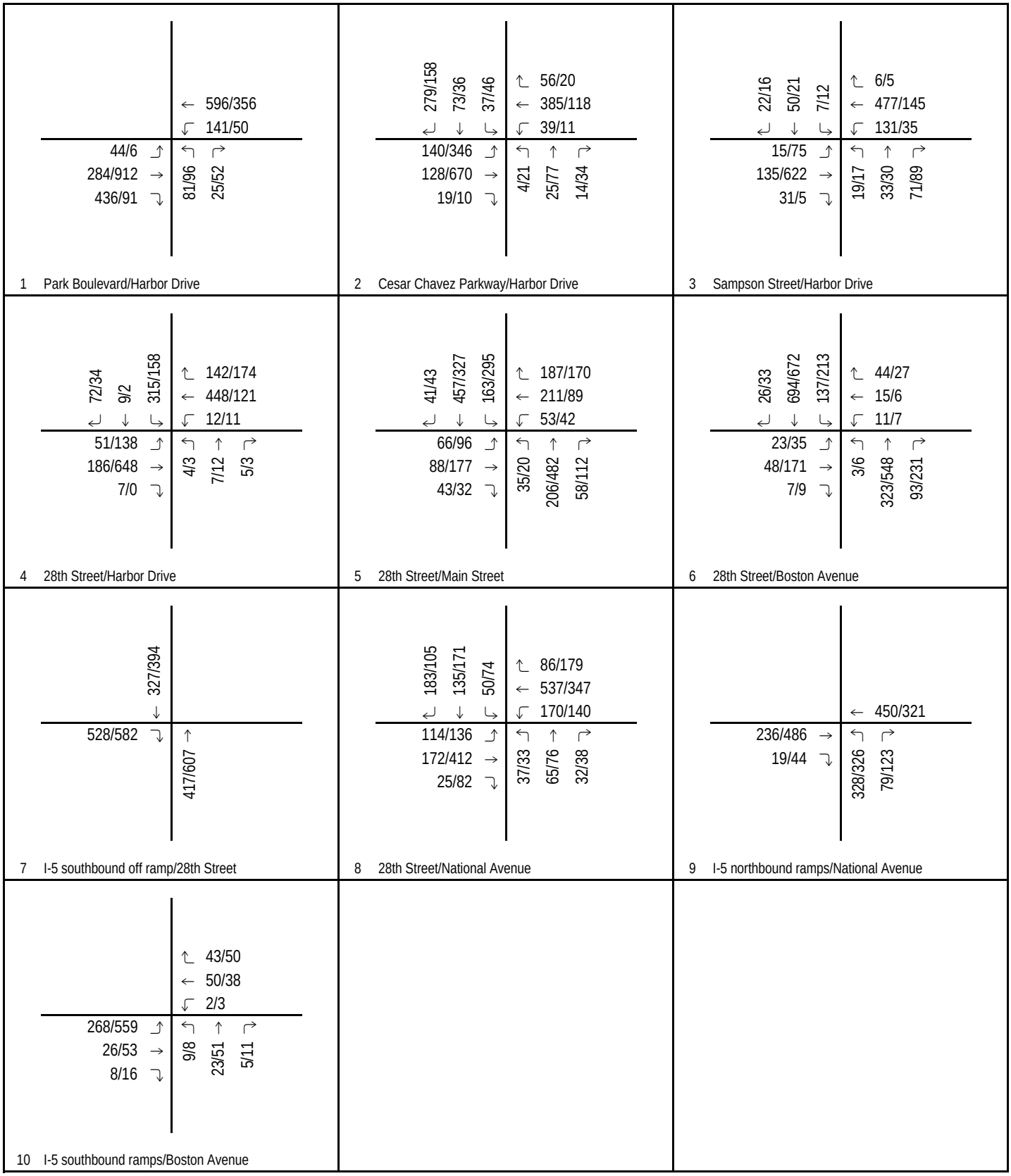

LSA

FIGURE 4.1-6

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project

Existing + Project Peak Hour Intersection Traffic Volumes (Staging Area 3)

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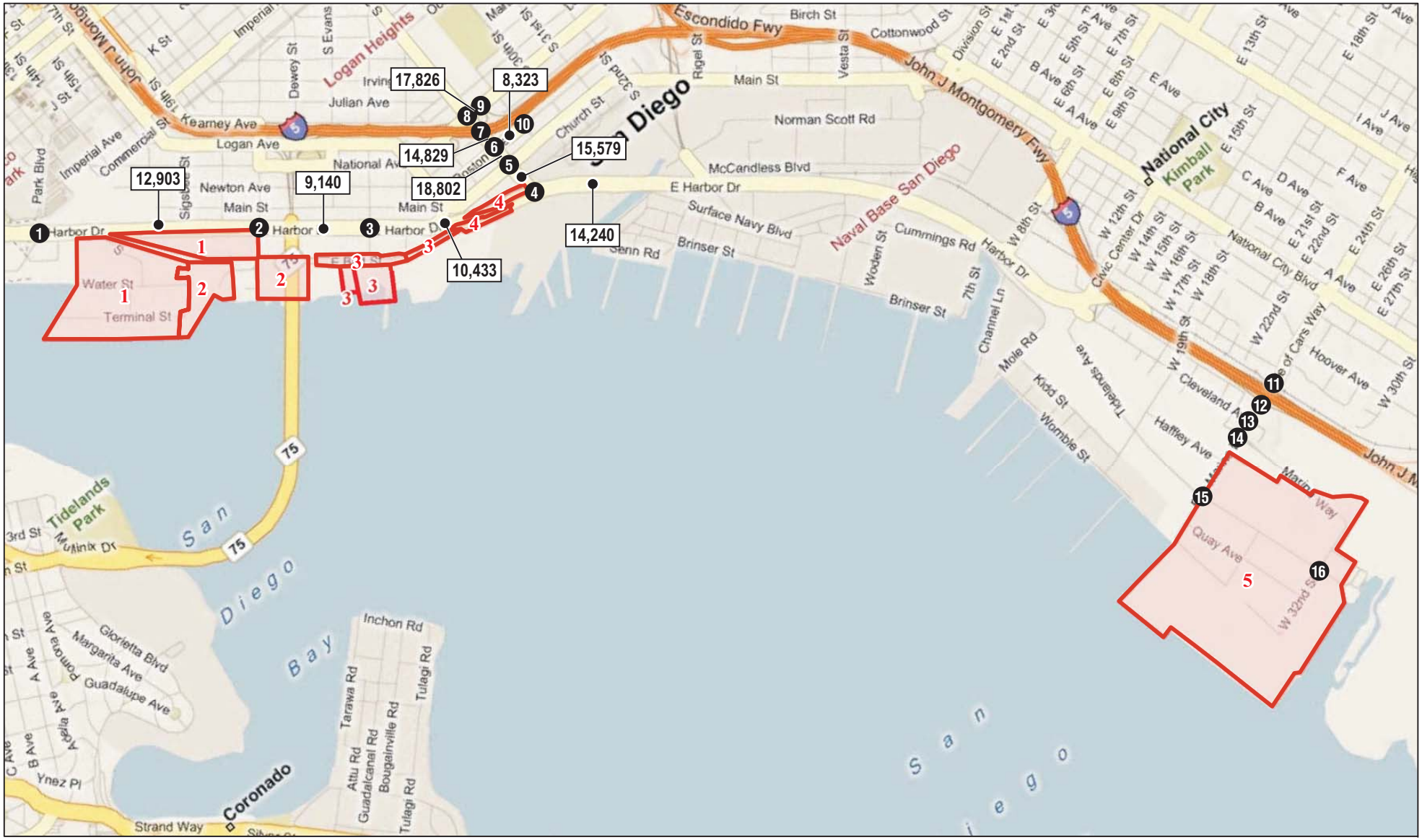

LSA

FIGURE 4.1-7

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume

0 1250 2500
FEET

SOURCE: Bing Maps (2008)

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Shipyard Sediment Remediation Project

Existing Plus Project Average Daily Traffic Volumes
Staging Area 3

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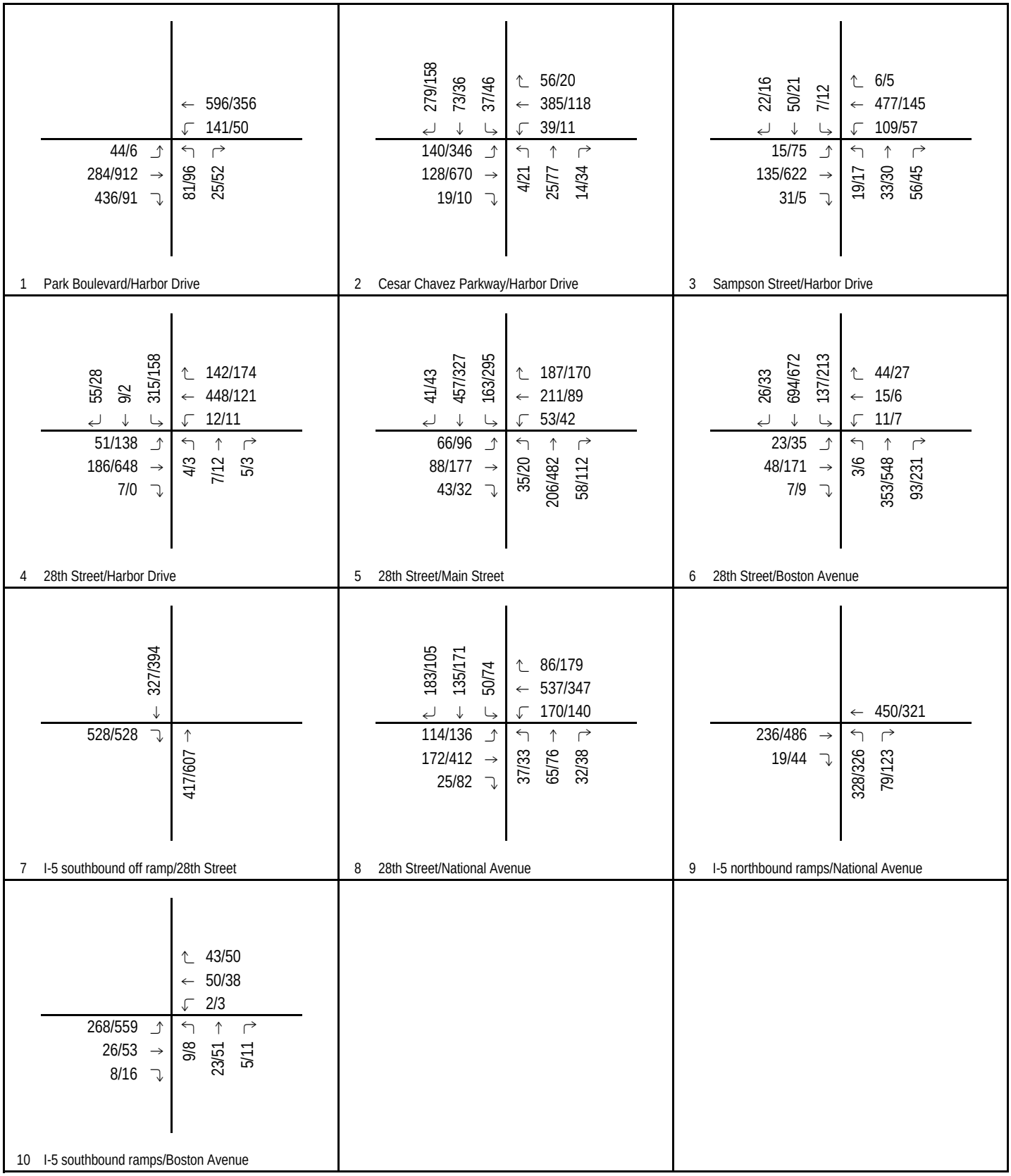

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FIGURE 4.1-8

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project

Existing + Project Peak Hour Intersection Traffic Volumes (Staging Area 4)

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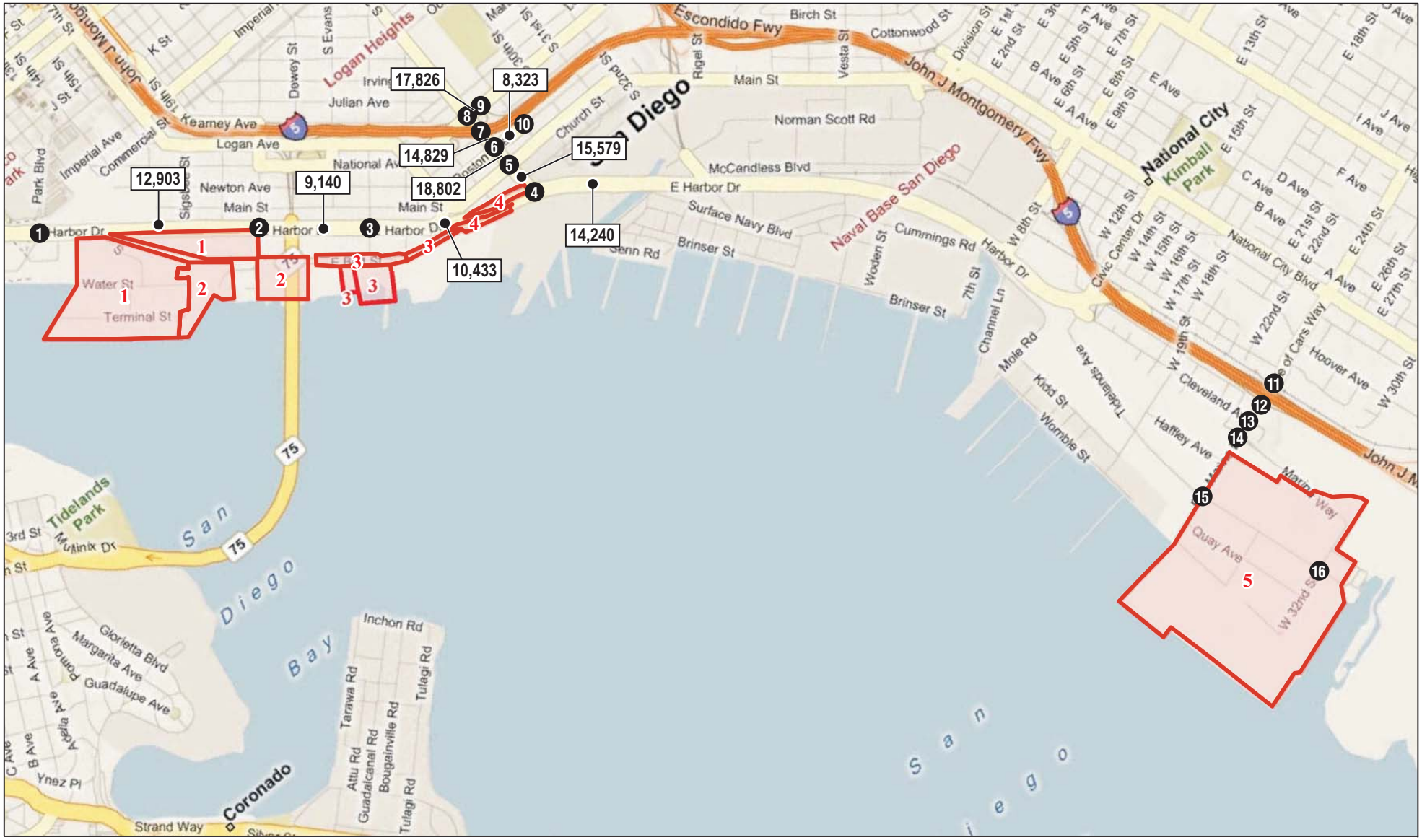

LSA

FIGURE 4.1-9

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection
- X,XXX Average Daily Traffic Volume

0 1250 2500
FEET

SOURCE: Bing Maps (2008)

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Shipyard Sediment Remediation Project

Existing Plus Project Average Daily Traffic Volumes
Staging Area 4

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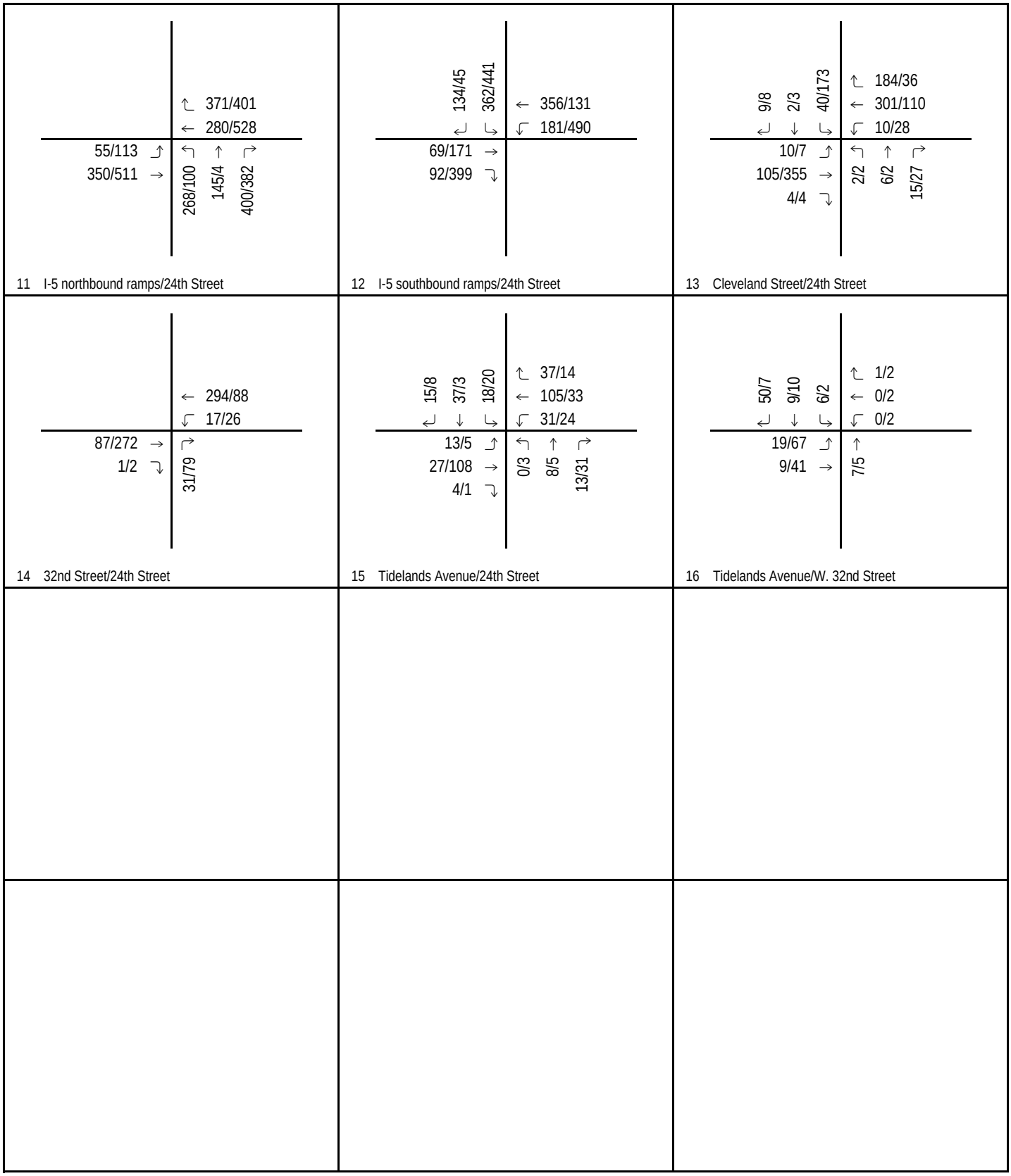

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FIGURE 4.1-10

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project

Existing + Project Peak Hour Intersection Traffic Volumes (Staging Area 5)

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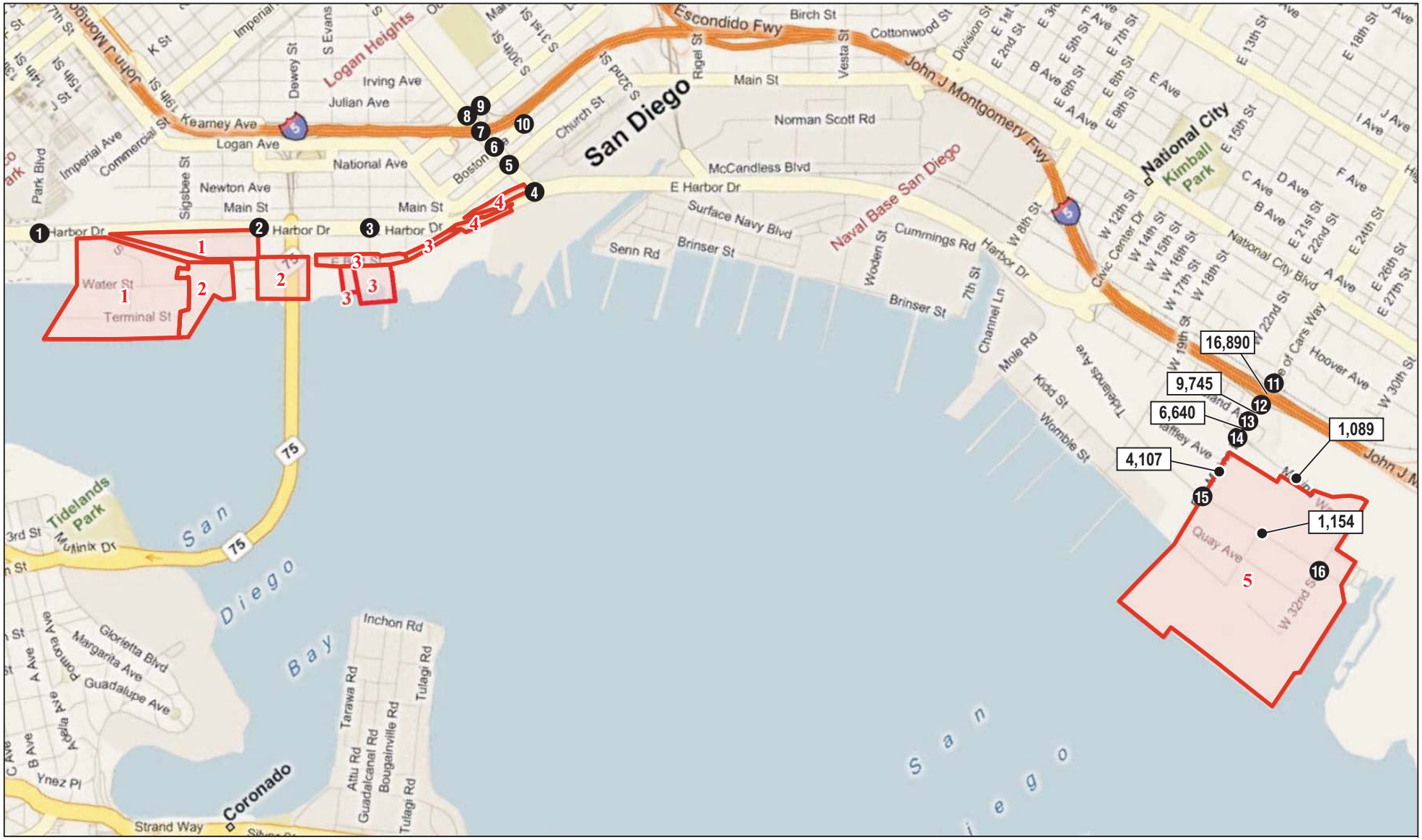

LSA

FIGURE 4.1-11

LEGEND

Potential Sediment Staging Areas

Study Area Intersection

X,XXX Average Daily Traffic Volume

0 1250 2500
FEET

SOURCE: Bing Maps (2008)

Shipyard Sediment Remediation Project

Existing Plus Project Average Daily Traffic Volumes
Staging Area 5

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LSA

FIGURE 4.1-12

Shipyard Sediment Remediation Project
Bayshore Bikeway

SOURCE: SANDAG

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4.2 HYDROLOGY AND WATER QUALITY

This section of the Administrative Draft Program Environmental Impact Report (PEIR) evaluates the potential impacts to hydrology and water quality from implementation of the proposed project. The analysis in this section is based on the *Draft Water Quality Technical Report* (Geosyntec Consultants, Inc., May 2011). This report is included in Appendix C.

4.2.1 Existing Setting

4.2.1.1 Surface Waters

As defined in the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan), watersheds are described as Hydrologic Unit (HU), Hydrologic Area (HA), and Hydrologic Subarea (HSA). HUs are subdivided into HAs, which are divided into HSAs. The purpose of hydrologic boundaries is to designate the area within a larger watershed that drains in a particular direction to a particular waterbody. HUs are the entire watershed of one or more streams, HAs are major tributaries and/or major groundwater basins within the HU, and HSAs are major subdivisions of HAs, including both water-bearing and non-water-bearing formations.

Sediment Staging Areas 2, 3, 4, and the southern portion of Staging Area 1 are located in the Pueblo San Diego HU, San Diego Mesa HA, and Chollas HSA. The northern portion of Staging Area 1 is located in the Lindbergh HSA, San Diego Mesa HA, and Chollas HSA. Staging Area 5 is located in the La Nacion HSA, Lower Sweetwater HA, and Sweetwater HU.

Chollas Creek is located to the south of the Shipyard Sediment Site. The Sweetwater River is located to the south of Staging Area 5. Both Chollas Creek and Sweetwater River discharge into San Diego Bay. San Diego Bay and the Pacific Ocean are the primary receiving waters of the project site.

The Shipyard Sediment Site is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west.

San Diego Bay is a naturally formed, crescent-shaped embayment. It is separated from the Pacific Ocean by Silver Strand Peninsula, a long, narrow sand spit that extends from the City of Imperial Beach to North Island. The mouth of San Diego Bay is about 0.6 mile wide, and is aligned north-to-south between Point Loma and Zuniga Point. From the mouth of the Otay River to the tip of Point Loma, San Diego Bay is about 15 miles long, and varies from 0.2 to 3.6 miles in width. It is 17 square miles (sq mi) in area at mean lower low water (MLLW).

The outer half of San Diego Bay is narrow, averaging about 0.6 to 1.2 miles, while the inner half is much wider, averaging about 2.0 to 2.4 miles.

Prior to major filling activities, which began in 1888 and intensified just before and during World War II, San Diego Bay had an area of 21 to 22 sq mi, as defined by the mean high tide line of 1918. Based on this high tide line, about 6 sq mi of San Diego Bay, or about 27 percent, have been filled. Only 17 to 18 percent of the original San Diego Bay floor remains undisturbed by dredge or fill.

Several major freshwater systems discharge into San Diego Bay, including the Sweetwater River, which drains to the south-central portion of San Diego Bay; Chollas Valley, which drains to the central portion of San Diego Bay; and Otay River and Telegraph Creek, which drain to southern San Diego Bay. In winter, when San Diego County receives most of its precipitation, fresh water enters San Diego Bay via storm drains, urban runoff, streams, and flood control channels. In summer, freshwater flows into San Diego Bay are minimal, and evaporation of water from the surface of San Diego Bay increases. San Diego Bay is an "inverse" embayment, where evaporation exceeds freshwater inputs, creating a net inflow of ocean water.

Tides in San Diego Bay are classified as mixed diurnal/semi-diurnal, with the semidiurnal component dominant. Generally, the tides in San Diego Bay consist of two low and two high tides per day on an approximately 2-week, spring-neap tidal cycle that is associated with the phase of the moon. Tides do not follow a 24-hour cycle, so some days experience only three of the four tides within a calendar day.

4.2.1.2 Surface Water Quality

Tidal exchange in San Diego Bay exerts control over the flushing of contaminants, salt and heat balance, and residence time of water. The ebb and flood of tides mix ocean and San Diego Bay waters. Tides produce currents, 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.

Primarily, water quality in north-central San Diego Bay is affected by tidal flushing and currents. Water quality also is influenced locally by freshwater inflows. The 1997 National Sediment Quality Survey determined that San Diego Bay and offshore areas around San Diego appear to have the highest sediment contamination within United States Environmental Protection Agency (U.S. EPA) Region 9. Major contaminants found in San Diego Bay include chlorinated hydrocarbons, polychlorinated biphenyls (PCBs), toxic components of petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), heavy metals, and organotins such as tributyltin.

As discussed further in Section 4.2.2, San Diego Bay is impaired due to excessive concentrations of PCBs. A total of 172 acres of San Diego Bay are designated as contamination hot spots that contain toxic sediments and degraded benthic communities due to both point and non-point sources. The San Diego Bay shoreline between Sampson Street and 28th Street, which is within the project area, is impaired for copper, mercury, PAHs, PCBs, and zinc.

Water quality characteristics (e.g., salinity, temperature, and dissolved oxygen) form a gradient within San Diego Bay: waters in northern San Diego Bay being similar to ocean conditions; waters in southern San Diego Bay being strongly affected by shallow depths, fresh water inflows, and insulation; and waters in central San Diego Bay being intermediate in character. The turbidity (i.e., the amount of particulate matter in suspension in the water column) of San Diego Bay waters is affected by phytoplankton blooms; inputs of fine sediments from surface runoff during and after storms; and sediment resuspension by winds, waves, and human activities. Consequently, an increase in turbidity can limit light penetration and the level of primary production. Turbidity in San Diego Bay varies both temporally and spatially.

4.2.1.3 Groundwater

Groundwater basins are defined in the Basin Plan by the same HUs, HAs, and HSAs as surface waters. Groundwater at the project site has substantial saltwater intrusion and is unsuitable for use as drinking water. The Shipyard Sediment Site is within San Diego Bay, and the paved Sediment Staging Areas are impervious and do not support surface recharge of groundwater.

4.2.1.4 Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Nos. 06073C1883F, 06073C1884F, 06073C1911F, and 06073C1913F (June 19, 1997), the Shipyard Sediment Site (within San Diego Bay) is located within Zone AE of the 100-year floodplain (special flood hazard areas subject to inundation by the 1 percent [100-year] annual chance flood, base flood elevations have been determined). The potential Sediment Staging Areas are within Zone X (areas determined to be outside the 0.2 percent annual chance [500-year] floodplain).

4.2.2 Regulatory Setting

4.2.2.1 Federal Regulations

Clean Water Act. The Clean Water Act (CWA) is a comprehensive piece of legislation that generally includes reference to the Federal Water Pollution Control Act. Overall, the CWA seeks to protect the nation's water from pollution by setting water quality standards for

surface water and by limiting the discharge of effluents into waters of the United States. These water quality standards are enforced by the U.S. EPA. The CWA also provides for development of municipal and industrial wastewater treatment standards and a permitting system to control wastewater discharges to surface waters. The CWA is the primary federal statute governing the discharge of dredged and/or fill material into waters of the United States. Relevant sections include the following:

- **Section 404.** The United States Army Corps of Engineers (ACOE) regulates discharge of dredged or fill material into waters of the United States under section 404 of the CWA. Activities requiring section 404 permits are limited to discharges of dredged or fill materials into the waters of the United States. The proposed project will require a 404 Permit from the ACOE for the discharge of dredged and fill materials from and into San Diego Bay.
- **Section 401.** Section 401 of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the state in which the discharge originates or will originate from the state agency with jurisdiction over those waters (San Diego Water Board) that the project will comply with water quality standards, including beneficial uses, water quality objectives, and the state Antidegradation Policy (State Water Resources Control Board Resolution No. 68-16). The proposed project will require a 401 Permit in order to obtain the 404 Permit from the ACOE for the disposal of dredged materials from San Diego Bay and for the discharge of clean sand cover into San Diego Bay.
- **Section 303(d).** Section 303(d) of the CWA requires identifying and listing those water bodies that are water quality impaired. Once a water body has been deemed impaired, a total maximum daily load (TMDL) must be developed for each impairing water quality constituent. A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a "factor of safety" included that limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body. The receiving water for the project site, as described in greater detail below, is 303(d) listed and is considered impaired for specific constituents.

Rivers and Harbors Act. Section 10 of the Rivers and Harbors Act requires authorization from the ACOE for the construction of any structure in or over any navigable water of the United States, the excavation/or deposition of material in these waters, or any obstruction or alteration in "navigable water." The proposed project will require a section 10 Permit from the ACOE for the disposal of dredged material.

Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972. Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 requires authorization from the ACOE for the transportation of dredged material for disposal in the ocean, where it is determined that the disposal will not unreasonably degrade or endanger human health, welfare, or amenities; the marine environment or ecological systems; or economic potentialities. A 103 Permit will not be required because the material is planned to be disposed at an upland landfill. However, if material was tested and found to be suitable for open water ocean disposal, and an ocean disposal plan was approved by the Water Board, a 103 Permit would be required.

4.2.2.2 State Regulations

Porter-Cologne Water Quality Control Act. The federal CWA places the primary responsibility for control of water pollution and planning the development and use of water resources on the states, although it does establish certain guidelines for states to follow in developing their programs.

California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards) broad powers to protect water quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the State Water Board and Regional Water Boards the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

California Ocean Plan. The State Water Board has adopted a Water Quality Control Plan (WQCP) for ocean waters of California called the California Ocean Plan. With the exception of wildlife habitat, the California Ocean Plan identifies the same beneficial uses as the Basin Plan. The California Ocean Plan has similarly established water quality objectives for bacteriological, physical, chemical, radioactive, and biological characteristics. The California Ocean Plan also incorporates general requirements for the management of wastes discharged directly into the ocean, effluent quality requirements for waste discharges directly into the ocean, discharge prohibitions, and general provisions. The California Ocean Plan is incorporated by reference into the Basin Plan.

Water Quality Control Plan for the San Diego Basin. The Basin Plan is designated to preserve and enhance water quality and protect the beneficial uses of all regional waters. The Basin Plan is the state implementation of the federal CWA provisions for water quality planning and management contained in 40 Code of Federal Regulations (CFR) 130 and 40 CFR 131. Division 7 of the California Water Code (the Porter-Cologne Act) establishes a regulatory program to protect water quality and to protect beneficial uses of state waters.

Beneficial uses of water are defined in the Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. San Diego Bay has multiple designated beneficial uses. These designations address water quality, not the apportioning or consumption of the available resources. The long-term beneficial uses of San Diego Bay include: Industrial Service Supply (IND); Navigation (NAV); Contact Water Recreation (REC-1); Non-contact Water Recreation (REC-2); Commercial and Sport Fishing (COMM); Preservation of Biological Habitats of Special Significance (BIOL); Estuarine Habitat (EST); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); Marine Habitat (MAR); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Shellfish Harvesting (SHELL). The long-term beneficial uses for the Pacific Ocean include: IND, NAV, REC-1, REC-2, COMM, BIOL, WILD, RARE, MAR, Aquaculture (AQUA), MIGR, SPWN, and SHELL. An adverse effect or impact on a beneficial use occurs where there is an actual or threatened loss or impairment of that beneficial use. The Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters.

General water quality objectives have been prescribed in the Basin Plan for all surface waters, enclosed bays, and estuaries, coastal lagoons, and groundwater within the San Diego Region. Brief summaries of the objectives applicable to the project receiving waters are provided in Table 4.2-1.

California Toxics Rule. The California Toxics Rule (CTR) provides water quality criteria for certain potentially toxic compounds for inland surface waters, enclosed bays, estuaries, and waters designated with human health or aquatic life uses. Although the CTR criteria do not apply directly to the discharges of storm water runoff, the CTR criteria are utilized as benchmarks for toxics in urban runoff. The CTR and other water quality criteria and targets are used as benchmarks to evaluate the potential ecological impacts of storm water runoff to receiving waters. The CTR establishes acute and chronic surface water quality standards for certain water bodies. Acute criteria provide benchmarks for the highest permissible concentration below which aquatic life can be exposed for short periods of time without deleterious effects. Chronic criteria provide benchmarks for an extended period of time (i.e., for 4 days or more) without deleterious effects. The acute CTR criteria have a shorter relevant averaging period (less than 4 days) and provide a more appropriate benchmark for comparison for storm water flows.

Table 4.2-1: Water Quality Objectives

Constituent	Objective
Ammonia, unionized	Discharge of wastes shall not cause concentrations of unionized ammonia to exceed 0.025 mg/L.
Bacteria, Coliform	In waters designated for REC-1, the fecal coliform concentration based on a minimum of not less than 5 samples for any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10% of all samples collected during any 30-day period exceed 400/100 ml. In waters designated for REC-2 and not designated for REC-1, the average fecal coliform concentrations for any 30-day period shall not exceed 2,000/100 ml nor shall more than 10% of samples collected during any 30-day period exceed 4,000/100 ml. In waters where shellfish harvesting for human consumption, commercial or sports purposes is designated (SHELL), the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 ml nor shall more than 10% of the samples collected during any 30-day period exceed 230/100 ml for a five-tube decimal dilution test or 330/100 ml when a three-tube decimal dilution test is used. In bays and estuaries, the most probable number of coliform organisms in the upper 60 feet of the water column shall be less than 1,000 per 100 ml (10 per ml) provided no more than 20% of the samples at any sampling station in any 30-day period exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).
Bacteria, E. Coli	In San Diego Bay where bay waters are used for whole fish handling, the density of E. coli shall not exceed 7 per ml in more than 20% of any 20 daily consecutive samples of bay water.
Bacteria, Enterococci	In salt waters designated for REC-1, the steady state enterococci concentration shall not exceed 33/100 ml.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those that stimulate algae and emergent plant growth. Threshold total phosphorus (P) concentrations shall not exceed 0.05 mg/L in any stream at the point where it enters any standing body of water, nor 0.025 mg/L in any standing body of water. A desired goal in order to prevent plant nuisance in streams and other flowing waters appears to be 0.1 mg/L total P. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the San Diego Water Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N:P = 10:1 on a weight-to-weight basis shall be used.

Table 4.2-1: Water Quality Objectives

Constituent	Objective
Color	Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses. The natural color of fish, shellfish or other resources in inland surface waters, coastal lagoon or bay and estuary shall not be impaired.
Dissolved Oxygen	Dissolved oxygen levels shall not be less than 5.0 mg/L in inland surface waters with designated MAR or WARM beneficial use. The annual mean dissolved oxygen concentration shall not be less than 7.0 mg/L more than 10% of the time.
Floating Materials	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses.
Oil and Grease	Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect the water for beneficial uses.
Pesticides	No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels that will bioaccumulate in aquatic organisms to levels that are harmful to human health, wildlife or aquatic organisms.
pH	Changes in normal ambient pH levels shall not exceed 0.2 units in waters with designated MAR, EST, or SAL beneficial uses. In bays and estuaries, the pH shall not be depressed below 7.0 nor raised above 9.0.
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to the extent that presents a hazard to human, plant, animal, or aquatic life.
Sediment	Waters shall not contain suspended or settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses.
Suspended and Settleable Solids	Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses.
Taste and Odor	Waters shall not contain taste or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the San Diego Water Board that such alteration in temperature does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the San Diego Water Board. Inland surface waters shall not contain toxic pollutants in excess of the numerical objectives applicable to California specified in 40 CFR 131.36 (Section 131.36 revised at 57 FR 60848 December 22, 1992).

Table 4.2-1: Water Quality Objectives

Constituent	Objective
Turbidity	The transparency of waters in lagoons and estuaries shall not be less than 50% of the depth at locations where measurement is made by means of a standard Secchi disk, except where lesser transparency is caused by rainfall runoff from undisturbed natural areas and dredging projects conducted in conformance with waste discharge requirements of the Regional Water Board. With these two exceptions, increases in turbidity attributable to controllable water quality factors shall not exceed the following limits: Natural Turbidity — Maximum Increase 0-50 NTU — 20% over natural turbidity level 50-100 NTU — 10 NTU Greater than 100 NTU — 10% over natural turbidity level In addition, within San Diego Bay, the transparency of Bay waters, insofar as it may be influenced by any controllable factor either directly or through induced conditions, shall not be less than 8 feet in more than 20% of the readings in any zone as measured by a standard Secchi disk. Wherever the water is less than 10 feet deep, the Secchi disk reading shall not be less than 80% of the depth in more than 20% of the readings in any zone.

Source: Water Quality Control Plan for the San Diego Basin (9), California Regional Water Quality Control Board San Diego Region, September 8, 1994.
CFR = Code of Federal Regulations
EST = Estuarine Habitat
FR = Federal Register
MAR = Marine Habitat
mg/L = milligrams per liter
ml = milliliter
NTU = nephelometric turbidity units
REC-1 = Contact Water Recreation
REC-2 = Non-contact Water Recreation
Regional Water Board = Regional Water Quality Control Board
SAL = Saline Habitat
San Diego Water Board = California Regional Water Quality Control Board, San Diego Region
WARM = Warm Freshwater Habitat

CTR criteria are applicable to the receiving water body and therefore must be calculated based on the probable hardness values of the receiving waters. At higher hardness values for receiving waters, certain constituents, including copper, lead, and zinc, are more likely to be complexed (bound with) components in the water column. This, in turn, reduces the bioavailability and resulting potential toxicity of these metals.

Clean Water Act, Section 303, List of Water Quality Limited Segments. The State Water Board approved the 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report on August 4, 2010). On November 12, 2010, the U.S. EPA approved the 2010 California 303(d) List of Water Quality Limited Segments. San Diego Bay is listed as impaired for PCBs. The San Diego Bay shoreline between Sampson Street and 28th Street is listed as impaired for copper, mercury, PAHs, PCBs, and zinc. The anticipated TMDL completion date is January 1, 2013.

TMDLs for PCBs, PAHs, and chlordane for San Diego Bay near the mouth of Chollas Creek are currently being developed.

Construction General Permit. Pursuant to CWA section 402(p), which requires regulations for permitting of certain storm water discharges, the shipyards will require coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Order No. 2009-0009-DWQ, NPDES No. CAS000002) (Construction General Permit) for storm water discharges from the sediment dewatering staging areas. Under the Construction General Permit, storm water discharges from construction sites with a disturbed area of 1 or more acres are required to either obtain individual NPDES permits for storm water discharges or be covered by the Construction General Permit. Coverage under the Construction General Permit is accomplished by completing and filing a Notice of Intent (NOI) with the State Water Board. Each Applicant under the Construction General Permit must ensure that a Storm Water Pollution Prevention Plan (SWPPP) is prepared prior to preparing the staging area(s), and is implemented during construction. The primary objective of the SWPPP is to identify, construct, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm-water discharges from the construction site. Dischargers are also required to comply with monitoring and reporting requirements to ensure that discharges comply with the numeric action levels and numeric effluent limitations specified in the permit.

General Waste Discharge Requirements for Construction Non-Storm-Water Discharges. General Waste Discharge Requirements (WDRs) (Dewatering General Permit) will be issued by the San Diego Water Board, which governs non-storm-water, construction-related discharges from activities associated with the upland dewatering staging areas. This permit addresses discharges from activities such as dewatering, water line testing, and sprinkler system testing. The discharge requirements include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges. The General WDRs authorize such construction-related discharges so long as all conditions of the permit are fulfilled.

4.2.2.3 Local Regulations

San Diego Municipal Permit. In February 2007, the San Diego Water Board reissued the Municipal Storm Water Permit (Order No. R9-2007-0001, NPDES Permit No. CAS0108758) to the County of San Diego, incorporated cities therein in addition to the San Diego Unified Port District (Port District) and the San Diego County Regional Airport Authority (referred to as "Copermittees"). Pursuant to the San Diego County Municipal Permit (currently in its third term), each of the Copermittees were required to develop and implement a Jurisdictional Urban Runoff Management Program (JURMP) for its jurisdiction, as well as Watershed Urban Runoff Management Plans (WURMPs) and a new Regional Urban Runoff Management Plan (RURMP), which describe the Copermittees' urban runoff management programs in their entirety.

Additional new requirements of the third-term permit that were not in the previous third permit include those pertaining to hydromodification and Low Impact Development (LID) features. The term "hydromodification" refers to the changes in runoff characteristics from a watershed caused by changes in land use condition. More specifically, hydromodification refers to changes in the magnitude and frequency of stream flows as a result of urbanization and the resulting impacts on the receiving channels in terms of erosion, sedimentation and degradation of in-stream habitat. The updated Municipal Storm Water Permit requires the development of a Hydromodification Management Plan by Copermittees to develop a standard for limiting hydromodification of downstream channels. It also requires the development of interim criteria for priority development projects disturbing more than 50 acres.

Cleanup and Abatement Order. Cleanup and Abatement Orders (CAOs) are issued under the authority of the California Water Code (section 13304). As defined in the State Water Board's Water Quality Enforcement Policy (adopted November 17, 2009):

> *CAOs may be issued to any person who has discharged or discharges waste into State waters in violation of any waste discharge requirement or other order or prohibition issued by a Regional Water Board or the State Water Board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates, or threatens to create, a condition of pollution or nuisance (discharger). The CAO requires the discharger to clean up the waste or abate the effects of the waste, or both, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.*

A CAO requires dischargers to clean up the pollution to background levels or the best water quality that is reasonable. At a minimum, cleanup levels must fully support beneficial uses, unless the Regional Water Board allows a containment zone. The Tentative CAO determined that cleaning up to a background sediment quality level at the Shipyard Sediment Site is economically infeasible. Therefore, the Tentative CAO established alternative cleanup levels for the project that are the lowest technologically and economically achievable levels, as required under the California Code of Regulations (CAR) Title 23 section 2550.4(e).

The San Diego Water Board has determined that several agencies and/or parties caused or permitted the discharge of waste to the Shipyard Sediment Site resulting in the accumulation of waste in the marine sediment. The contaminated marine sediment has caused conditions of contamination or nuisance in San Diego Bay that adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses. The San Diego Water Board determined that issuance of a CAO was the appropriate regulatory tool to use for correcting the impairment at the Shipyard Sediment Site. On September 15, 2010, the San Diego Water Board issued Tentative CAO No. R9-2011-0001 for the Shipyard Sediment Site.

The Tentative CAO indentified a remedial footprint for dredging and clean sand cover. The Tentative CAO requires water quality monitoring, sediment monitoring, and disposal monitoring to ensure that remedial actions have not caused water quality standards to be violated outside of the remedial footprint, that the target cleanup levels have been reached within the remedial footprint, and to assess sediment for appropriate disposal. Post-remediation monitoring is required by the Tentative CAO to verify that remaining pollutant concentrations in the sediments will not unreasonably affect San Diego Bay beneficial uses. These requirements of the Tentative CAO are included as part of the proposed project.

4.2.3 Thresholds of Significance

Threshold 4.2.1: Violate any water quality standards or waste discharge requirements?

Threshold 4.2.2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., 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)?

Threshold 4.2.3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?

Threshold 4.2.4: 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 which would result in flooding on or off site?

Threshold 4.2.5: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Threshold 4.2.6: Otherwise substantially degrade water quality?

Threshold 4.2.7: Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Threshold 4.2.8: Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Threshold 4.2.9: 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?

Threshold 4.2.10: Inundation by siècle, tsunami, or mudflow?

The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the Initial Study (IS) prepared for this project determined that the proposed project would not have a significant impact with respect to the following: groundwater resources, drainage patterns, storm drain capacity, flooding, or inundation. Therefore, these issues (Thresholds 4.2.2 through 4.2.5 and 4.2.7 through 4.2.10) are not addressed further in this PEIR.

4.2.4 Impacts and Mitigation

4.2.4.1 Potentially Significant Impacts

Water Quality Impacts. The activities proposed as part of the project that have the potential to result in adverse water quality impacts include dredging, unloading of dredged material to onshore dewatering area, onshore dewatering, and application of the clean sand covers. The shipyard sediments are known to be contaminated with several constituents of concern. The primary constituents of concern for the proposed project are copper, mercury, high molecular weight polynuclear aromatic hydrocarbons (Haps), PCBs, and tributyltin, and the secondary constituents of concern are arsenic, cadmium, lead, and zinc.

The project activities listed above could degrade water quality by introducing sediments and contaminants into the water column that could increase turbidity and degrade acceptable levels of habitat quality for organisms in the water column. In addition, the primary and

secondary constituents of concern could be released when bed sediments are suspended in the water column. Resuspended contaminants may dissolve into the water column and become available for uptake by biota. Re-deposition may occur near the dredge area or, depending on the environmental conditions and controls, resuspended sediment may be transported to other locations in the water body. Resuspension of contaminated sediments and release of constituents of concern could impact water quality by decreasing dissolved oxygen, changing pH, increasing turbidity, and increasing contaminant levels to levels toxic to aquatic receptors. Changes in water quality could degrade and/or impair the beneficial uses in San Diego Bay and the Pacific Ocean. Sediment dredging activities are planned such that a sufficient volume of contaminated sediment is removed; however, removing all particles of contaminated sediment is neither practical nor feasible.

Automatic systems will be used to monitor turbidity and constituents of concern, as specified in Mitigation Measure 4.2.1. Standard BMPs listed in Mitigation Measure 4.2.2 will be implemented to minimize resuspension, spillage, and misplaced sediment during dredging operations. As specified in Mitigation Measure 4.2.3, double silt curtains would be used to contain the resuspension of suspended sediments and prevent the dispersal of constituents of concern outside the dredging area. In addition, water quality monitoring will be implemented during remediation activities to verify that remediation activities would not unreasonably affect beneficial uses in San Diego Bay, as specified in Mitigation Measure 4.2.4.

Waters from the dredging process (loading the dredge material barge and offloading dredged material to onshore) is strictly prohibited from re-entering San Diego Bay by the San Diego Water Board. As detailed in Mitigation Measure 4.2.5, a steel plate will be placed between the material barge and the hardscape to prevent dredged sediment or water from falling back into the water. In addition, the contractor would ensure that the dredged material is not released from the dredge bucket back into the water, as specified in Mitigation Measure 4.2.6.

Because portions of the remedial areas (approximately 2.4 acres) are located under piers and cannot be feasibly dredged without impacting the infrastructure, these areas will be covered with a layer of clean sand to contain contaminated sediments. As specified in Mitigation Measures 4.2.7 and 4.2.8, the clean sand covers will be designed and installed to reduce the potential for sediment and contaminants to be released into the water column.

Accidental oil or fuel spills that could potentially occur during the proposed dredging operations could impair and/or degrade water quality in San Diego Bay, depending on the severity of the spill. Such events are likely to be localized spills of lighter, refined diesel fuels, gasoline, and lubricating oils that are highly toxic to marine life. The potential for the occurrence of petroleum-product leaks or spills is low, but the potential for an adverse effect to marine resources is moderate to high. A Dredging Management Plan (DMP) containing

Standard Operating Procedures (SOPs) to reduce the potential for spills will be implemented during dredging operations, as specified in Mitigation Measure 4.2.9.

Onshore dewatering activities have the potential to impact water quality in the unlikely event that decanted water flows back into San Diego Bay, which could cause turbid conditions, decrease dissolved oxygen, decrease water clarity, and increase existing concentrations of suspended solids. Additionally, if the decanted water flowing back into the water column contains constituents of concern, degradation of water quality and increased toxicity to aquatic organisms could occur. These impacts can impair and degrade beneficial uses in San Diego Bay and the Pacific Ocean. As specified in Mitigation Measure 4.2.10, the area surrounding the dewatering containment cells will be contained using beams to prevent any decanted water from flowing back into San Diego Bay. Mitigation Measure 4.2.11 includes measures to prevent overfilling of the containment cells or breaching of the dewatering pad. In addition, the dewatering operations will comply with the provisions of the NPDES Construction General Permit (Order No. 2009-0009-DWQ, NPDES No. CAS000002). This includes preparation of a SWPPP that includes BMPs including, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control.

In addition, there is a potential for disposal of decanted water from the containment cell to exceed City of San Diego requirements for discharge of wastewater to the sanitary sewer system. In addition, disposal of the decanted water into the sanitary sewer system has the potential to exceed the capacity of the sewer system. As detailed in Mitigation Measure 4.2.13, water will be tested prior to disposal into the sewer system to ensure that the discharged water meets the City of San Diego requirements for pollutant concentrations, discharge times, and flow rates.[1]

Environmental Justice. San Diego Bay has multiple designated beneficial uses including several which pertain to recreation uses, including: REC-1, REC-2, COMM, and SHELL. Other beneficial uses support industrial and government employment in the harbor, including IND and NAV. Still other beneficial uses pertain primarily to the biological resource protection in the Bay including: BIOL, EST, WILD, RARE, MAR, MIGR, and SPWN. Mitigation Measures 4.2.1 through 4.2.13 will reduce impacts to water quality and help to ensure that the proposed remediation project would not impair the beneficial uses of San Diego Bay, including those uses for which minority and/or low-income populations may participate in, such as recreational boating and fishing. Therefore, although there is a high

[1] The City of San Diego, Public Utilities Department, Wastewater Branch, provides regional wastewater treatment and disposal services for the City of San Diego and 15 other cities and special districts. The Participating Agencies are the Cites of Chula Vista, Coronado, Del Mar, El Cajon, Imperial Beach, La Mesa, **National City**, Poway, the Lemon Grove Sanitation District, the Otay Water District, the Padre Dam Municipal Water District, and the County of San Diego (including Lakeside/Alpine, Spring Valley, Wintergardens, and East Otay Mesa). Therefore, the requirements for discharge to the sanitary sewer system apply to Staging Area 5 in National City.

percentage of low-income and minority population in the project study area, the proposed project hydrology and water quality impacts are less than significant with mitigation incorporated, and implementation of the project with mitigation incorporated would not result in disproportionately high and adverse health or environmental impacts to minority and low-income populations.

Implementation of Mitigation Measures 4.2.1 through 4.2.13 would reduce adverse effects to water quality from the dredging, dewatering, decanting, and treatment activities, and would reduce project impacts to water quality to less than significant levels. These mitigation measures are described below.

4.2.4.2 Mitigation Measures

Mitigation Measure 4.2.1: During dredging operations, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the contractor/dredge operator is using automatic rather than manual monitoring of the dredging operations, which will allow continuous data logging with automatic interpretation and adjustments to the dredging operations for real-time feedback for the dredge operator. Automatic systems shall also be used to monitor turbidity in the vicinity of the dredging operations to facilitate real-time adjustments by the dredging operators to control temporary water quality effects. The automatic systems shall include threshold level alarms so that the operator or other appropriate project personnel recognize that a particular system within the operation has failed. If the threshold-level alarms are activated, the dredge operator shall immediately shut down or modify the operations to reduce water quality constituents to within threshold levels. The San Diego Water Board shall further verify that the contractor/dredge operator is using visual monitoring and recording of water turbidity during the dredging operations, including the temporary cessation of dredging if exceedances of the turbidity objective in the Basin Plan occur.

Mitigation Measure 4.2.2: During dredging operations, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the dredge contractor is implementing standard Best Management Practices (BMPs) for minimizing resuspension, spillage, and misplaced sediment during dredging operations, as the deposition of such material would

increase turbidity and compromise cleanup efforts. Such BMPs shall include, but not be limited to, the following:

- The contractor shall not stockpile material on the bottom of the San Diego Bay floor and shall not sweep or level the bottom surface with the bucket.
- The contractor shall use and maintain double silt curtains that encircle the area of dredging and shall minimize the times in which these curtains are temporarily opened, to contain suspended sediments.
- The contractor may use air curtains in conjunction with silt curtains to contain re-suspended sediment, to enhance worker safety, and allow barges to transit into and out of the work area without the need to open and close silt curtain gates.
- The contractor shall ensure the environmental clamshell bucket is entirely closed when withdrawn from the water and moved to the barge. This action requires extra attention when debris is present to make sure debris does not prevent the bucket from completely closing. Two closure switches shall be on each side of the bucket near the top and bottom to provide an electrical signal to the operator that the bucket is closed. Use of the switches shall minimize the potential of sediment leaking from the bucket into the water column during travel to the surface.
- The contractor shall not overfill the digging bucket because overfill results in material overflowing back into the water. Use of instrumentation such as Clam Vision® shall allow the operator to visualize in real time the depth of cut that shall be designed to prevent overfilling.
- The contractor shall utilize wide-pocket material barges having watertight containments to prevent return water from re-entering San Diego Bay. The contractor shall not overfill the material barge to a point where overflow or spillage could occur. Each material barge shall be marked in such a way to allow the operator to visually identify the maximum load point. The marking should allow sufficient interior freeboard to prevent spillage in rough water such as ship wakes during transit. Initiating the material barge marking shall minimize impact of load spillage during transit to the unloading area.

- The contractor shall not use weirs as a means to dewater the scow and shall allow additional room for sediment placement. Preventing this action shall minimize the introduction of turbidity to the water column.
- The contractor shall place material in the material barge such that splashing or sloshing does not occur, which could send sediment back into the water. Splashing can be controlled by restricting the drop height from the bucket.
- If the use of a grate to collect debris is required, the contractor shall not allow material to pile up on the grid and flow or slip from the grid back into the water. The debris scalper shall be positioned in such a way as to be totally contained on the shore side of the unloading operations. The dredge operator shall visually monitor for debris build-up and alert the support personnel on the barge to assist in clearing the debris, as necessary. Debris that is derived from dredging activities shall be removed from the grate by the environmental clamshell bucket and placed in a contained area on the dredge barge or in a second material barge for subsequent removal to the onshore dewatering facility.
- The contractor shall restrict barge movement and work boat speeds (i.e., reducing propeller wash) in the dredge area. The remedial design should identify the various areas where this operational control should be used.

Mitigation Measure 4.2.3: During dredging operations, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the contractor is deploying inner- and outer-boundary floating silt curtains fully around the dredging area at all times. Double silt curtains shall be utilized for containment of the dredge area; configurations, technologies, and actual locations of silt curtains in relation to the dredge barge shall be finalized during the design phase of the project. The floating silt curtain shall be comprised of connected lengths of Type III geotextile fabric. A continuous length of floating silt curtain shall be arranged to fully encircle the dredging equipment and the scow barge being loaded with sediment. The silt curtain shall be supported by a floating boom in open water areas (such as along the bay ward side of the dredging areas). Along pier edges, the contractor shall have the option of connecting the silt curtain directly to the

structure. The contractor shall continuously monitor the silt curtain for damage, dislocation, or gaps and immediately fix any locations where it is no longer continuous or where it has loosened from its supports. The bottom of the silt curtain shall be weighted with ballast weights or rods affixed to the base of the fabric. Where feasible and applicable, the floating silt curtains shall be anchored and deployed from the surface of the water to just above the substrate. If necessary, silt curtains with tidal flaps may be installed to facilitate curtain deployment in areas of higher flow. Air curtains may be used in conjunction with silt curtains to contain resuspended sediment, enhance worker safety, and allow barges to transit into and out of the work area without the need to open and close silt curtain gates.

Mitigation Measure 4.2.4: Throughout the remediation process of dredging and application of the clean sand covers, the contractor shall conduct water quality monitoring to demonstrate that implementation of the remedial activities does not result in violations of water quality objectives in the Basin Plan outside of the construction area. The contractor shall submit weekly water quality reports to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). If water quality objectives are violated, the San Diego Water Board may temporarily halt activity and impose additional required measures to protect water quality.

Mitigation Measure 4.2.5: Prior to initiation of dredging activities, the contractor shall determine the swing radius of the unloading equipment and shall place a steel plate (swing tray or spill plate) between the material barge and the hard cape to prevent spillage from falling directly into the water. The steel plate shall be sufficiently large enough to cover the swing radius of the unloading equipment. The spill plate shall be designed to prevent any "drippings" from falling between the material barge and dock where the unloading equipment is stationed. The spill plate shall be positioned so that any "dripped" material/water either runs back into the material barge or onto the unloading dock, which shall be lined with an impermeable material and beamed to contain excess sediment/water. The steel plate shall be designed to prevent any water or sediment from re-entering San Diego Bay. As a secondary containment measure, filter fabric material shall be placed over the spill

plate and between edges of the barge and unloading dock to prevent any drippings from falling into San Diego Bay. Upon completion of unloading a material barge, the spill plate shall be cleaned as necessary so that any dried sediment is not discharged or released to the atmosphere. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for ensuring adherence to the requirements of this measure.

Mitigation Measure 4.2.6: During dredging activities, the contractor shall ensure that the environmental clamshell bucket is entirely closed when withdrawn from the barge and moved to the truck. In addition, the contractor shall ensure that the bucket is completely empty of sediment prior to being moved back to the barge to minimize sediment being spilled over the dock. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for ensuring adherence to the requirements of this measure.

Mitigation Measure 4.2.7: During final design of the clean sand covers, the sand layer thickness shall designed to prevent substantial perturbation (mixing and overturning) of underlying contaminated sediments, erosion (e.g., propeller wash), and the upward chemical migration into the clean sand covers. The clean sand cover design shall physically isolate the sediments from benthic or epigenetic organisms to prevent the uptake of bioaccumulative contaminants (i.e., polychlorinated biphenyls [PCBs]) by aquatic organisms either directly from the sediments or by foraging on benthos. The physical isolation component of the clean sand covers may include separate sub-components for isolation, bioturbation, and consolidation. The clean sand covers shall be designed to stabilize the contaminated sediments being covered and prevent them from being resuspended and transported off site. In addition, the clean sand covers shall be designed to be resistant to erosion, including propeller wash, flow, and tidal-induced erosion. The final engineering plans shall include the source and type of sand required for subaqueous application of the clean sand covers. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall review and have approval authority for the final engineering plans, and shall verify implementation. A regulatory oversight contractor may be used by the San Diego Water Board.

Mitigation Measure 4.2.8: During application of the clean sand covers, the contractor shall place the initial layers of the clean sand cover in thin lifts by hydraulically placing the material from a barge in order to reduce the vertical impact and lateral spreading of the clean sand cover material and the potential for resuspending the contaminated surface sediments. Controlled placement shall also minimize the mixing of the clean sand covers and underlying sediment by allowing the sediment to slowly gain strength before subsequent layers are deposited. Operational controls such as silt curtains shall also be employed during placement of the clean sand covers. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), with the assistance of a regulatory oversight contractor, shall be responsible for ensuring adherence to the requirements of this measure.

Mitigation Measure 4.2.9: Prior to dredging operations, a Dredging Management Plan (DMP) shall be prepared. The contractor shall implement the measures listed in the DMP during dredging operations. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for review and approval of the DMP. The DMP shall contain Standard Operating Procedures (SOPs) for the project to assist the dredge contractor in preventing accidental spills and providing the necessary guidelines to follow in case of an oil or fuel spill. In addition to providing SOPs to prevent accidental oil/fuel spills during construction activities, the DMP shall address the identification of dredging needs, a methodology and process for determining dredging priorities and scheduling, the feasibility and requirements for expedited permitting, Quality Assurance Project Plan (QAPP) to comply with regulatory requirements, alternatives for control and operation of dredging equipment, and Best Management Practices (BMPs) to implement in the event of equipment failure and/or repair. Typical BMPs for equipment failure or repair shall be identified in the DMP and could include: communication to project personnel, proper signage and/or barriers alerting others of potentially unsafe conditions, all repair work to be conducted on land and not over water, repair work involving use of liquids to be performed with proper spill containment equipment (e.g., spill kit), and a contingency plan identifying availability of other equipment or subcontracting options.

Furthermore, the DMP shall specify that water discharges to San Diego Bay are prohibited; therefore, the barge shall implement measures necessary to capture all return water and prevent discharge to San Diego Bay. In addition, the DMP shall include, at a minimum, the following measures to prevent accidental oil/fuel spills during construction activities:

- As an operational control element, all oil and fuel shall be housed in a secondary containment structure to ensure that any spill or leakage is prevented from entering the water column.
- Personnel involved with dredging and handling the dredged material shall be given training on the potential hazards resulting from accidental oil and/or fuel spills. This operational control shall provide the personnel with an awareness of the materials they are handling as well as the potential impact to the environment.
- All equipment shall be inspected by dredge contractor personnel before starting the shift. These inspections are intended to identify typical wear or faulty parts that may contain oil or fuel.
- Personnel shall be required to visually monitor for oil or fuel spills during construction activities.
- In the event that a sheen or spill is observed, the equipment shall be immediately shut down and the source of the spill identified and contained. Additionally, the spill shall be reported to the applicable agencies presented in the DMP.
- The shipyards currently have oil/fuel spill kits located at various locations on site for routine ship repair operations. All personnel associated with dredging activities shall be trained on where these spill kits are located, how to deploy the oil sorbent pads, and proper disposal guidelines. The dredging barge shall have a full complement of oil/fuel spill kits on board to allow for quick and timely implementation of spill containment.
- The floats on the silt curtains will serve function similar to oil booms in the event that a spill occurs, to contain. This operational control shall be the last line of defense against accidental oil/fuel spill occurrences.

The San Diego Water Board shall be responsible for verifying adherence to the requirements of this measure.

Mitigation Measure 4.2.10: The containment area constructed around the dewatering containment cell shall be designed to consist of berms (K-rails and/or dry dock blocks) surrounding the area that restrict decanted water/storm water to the land adjacent to the dewatering containment and prevent the water from flowing into San Diego Bay or the water table if a breach in the pad were to occur. If any area(s) adjacent to the dewatering containment cell are unpaved, a liner shall be utilized if necessary to prevent infiltration. The containment cell shall be designed as a "no discharge" facility and in a manner that prevents storm water runoff/run-on from adjacent areas to the cell from entering the dewatering area. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall review and approve the design of the dewatering containment cell and verify its implementation in accordance with approved plans.

Mitigation Measure 4.2.11: If a containment liner is used, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that the contractor has provided a salvaging layer of sand that is properly designed and implemented to provide a visual indicator to the excavator operator that he/she is getting close to the containment liner, or the use of closely spaced K-rails and dry dock blocks at key points (i.e., corners) to prevent the operator from getting to the containment liner, in order to prevent a breach in the dewatering pad.

Mitigation Measure 4.2.12: During dewatering operations, the contractor shall comply with the provisions of the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit, as they relate to activities conducted in the staging areas. This shall include submission of the Permit Registration Documents, including a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board (State Water Board) via the Storm Water Multi-Application and Report Tracking System (SMARTS) at least 7

days prior to the start of dewatering activities at the staging areas. Construction activities shall not commence until a Waste Discharger Identification (WDID) number is received from the SMARTS. The SWPPP shall be prepared by a Qualified SWPPP Developer (QSD); shall meet the requirements of the Construction General Permit; and shall identify potential pollutant sources associated with dewatering activities, identify non-storm water discharges, and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site. BMPs shall include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control. The BMPs identified in the SWPPP shall be implemented during project construction. An Annual Report shall be submitted using the SMARTS no later than September 1 of each year during dewatering operations. A Notice of Termination (NOT) shall be submitted to the State Water Board within 90 days of completion of dewatering activities and stabilization of the site. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for verifying the contractor's adherence to the requirements of this measure.

Mitigation Measure 4.2.13: Prior to any discharge to the sanitary sewer system, the contractor shall ensure that the decanted water is analytically tested following the discharge requirements for the San Diego Publically Owned Treatment Works (POTW). If water samples exceed the City of San Diego requirements for discharge of wastewater to the sanitary sewer system, the water shall be taken off site for treatment and subsequent disposal. In addition, the contractor shall comply with any limits on pollutant concentrations, discharge times, and flow rates required by the City of San Diego. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall be responsible for verifying the contractor's adherence to the requirements of this measure.

4.2.5 Cumulative Impacts

The evaluation of potential cumulative impacts of this project with other projects in and around San Diego Bay is the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Although there are no other contaminated sediment dredging projects currently scheduled for implementation in

San Diego Bay, the San Diego Water Board anticipates that regularly scheduled maintenance dredging projects may occur in San Diego Bay over the next several years.

To estimate the likely volume of these potential dredging actions, the San Diego Water Board has provided maintenance and environmental dredging records for the 11-year period from 1994 to 2005. These records show an average of approximately 245,000 cubic yards (cy) of material was dredged from San Diego Bay each year, with yearly totals ranging from 0 to 763,000 cy. While the dredge volume proposed for this project (approximately 143,400 cy) represents a significant dredge volume, the overall volume dredging activity in San Diego Bay is expected to be within these historical ranges and will not lead to significant cumulative impacts to water quality with implementation of Mitigation Measures 4.2.1 through 4.2.13 detailed above and Mitigation Measure 4.2.14 detailed below.

Because of the potential for a project involving contaminated sediment removal to occur concurrently with the Shipyard Sediment Site remedial effort in the next 10 years, discussions with the San Diego Water Board regarding a coordinated water quality monitoring effort and/or the sharing of water quality monitoring data will be initiated and continued throughout the duration of the project, as specified in Mitigation Measure 4.2.14. In addition, each dredging project must comply with NPDES permit requirements and include BMPs to avoid impacts to water quality in compliance with permitting requirements (e.g., General Construction Permit, General WDRs, etc.). Each project must consider impairments to receiving waters and include measures to address pollutants of concern so as to not add to the existing impairments. Implementation of Mitigation Measure 4.2.14, and compliance with the applicable regulatory permits, would reduce adverse cumulative effects to water quality to a less than significant level.

Mitigation Measure 4.2.14: The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall coordinate water quality monitoring efforts and share water quality monitoring data with other dredging projects in San Diego Bay throughout the duration of the project. Considerations for the issuance of dredge permits or General Waste Discharge Requirements (WDRs) shall include distance(s) between sites and proposed timing of in-water activities that shall involve potential impacts to water quality, selection of appropriate water quality reference sampling locations in San Diego Bay, configuration of silt curtains, and coordination of expected commercial and recreational vessel traffic.

4.2.6 Significant Unavoidable Adverse Impacts

Implementation of Mitigation Measures 4.2.1 through 4.2.14, described above, would reduce potential project and cumulative hydrology and water quality impacts to less than significant levels. Therefore, there are no significant unavoidable adverse impacts of the proposed project related to hydrology and water quality.

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4.3 HAZARDS AND HAZARDOUS MATERIALS

The hazards and hazardous materials analysis in this section is based on the following project-specific technical report: *Hazards and Hazardous Materials Technical Report, Shipyard Sediment Site, San Diego Bay, San Diego, CA* (Geosyntec Consultants, 2011), which is provided in Appendix D of this Program Environmental Impact Report (PEIR).

This section describes known and potentially hazardous materials conditions in the vicinity of the project site, related potentially significant adverse public health impacts anticipated as a result of the proposed project, and includes mitigation measures for the impacts as appropriate. This section also addresses the proposed impacts with consideration of local, state, and federal regulations and policies, and provides recommended mitigation measures pursuant to the California Environmental Quality Act (CEQA).

4.3.1 Existing Environmental Setting

4.3.1.1 Project Site Conditions

Shipyard Sediment Site. The sediment removal site (also referred to as the Proposed Remedial Footprint in the Draft Technical Report for Tentative Cleanup and Abatement Order [CAO] No. R9-2011-0001) comprises approximately 15.2 acres that are subject to dredging and 2.3 acres that are subject to clean sand cover, primarily under piers.

National Steel and Shipbuilding Company (NASSCO), a subsidiary of General Dynamics Company, owns and operates a full-service ship construction, modification, repair, and maintenance facility on 126 acres of tidelands property leased from the San Diego Unified Port District (Port District) on the eastern waterfront of central San Diego Bay at 2798 Harbor Drive. Shipyard operations have been conducted at this site over San Diego Bay waters or very close to the waterfront since at least 1960. Shipyard facilities operated over the years at the Shipyard Sediment Site have included concrete platens used for steel fabrication, a graving dock, shipbuilding ways, and berths on piers or land to accommodate the berthing of ships. An assortment of waste is generated at the facility, including spent abrasive, paint, rust, petroleum products, marine growth, sanitary waste, and general refuse. Current site improvements include offices, shops, warehouses, concrete platens for steel fabrication, a floating dry dock, a graving dock, two shipbuilding ways, and five piers providing 12 berthing spaces.

From 1979 to the present, Southwest Marine, Inc. and its successor, BAE Systems, have owned and operated a ship repair, alteration, and overhaul facility on approximately 39.6 acres of tidelands property on the eastern waterfront of central San Diego Bay. The facility, currently referred to as BAE Systems San Diego Ship Repair, is located on land leased from the Port District at 2205 East Belt Street at the foot of Sampson Street. Shipyard facilities operated over the years have included concrete platens used for steel fabrication, two floating dry docks, five piers, and two marine railways which, together with cranes, enable ships to be

launched or repaired. An assortment of waste has been generated at the facility, including spent abrasive, paint, rust, petroleum products, marine growth, sanitary waste, and general refuse. The business has historically been ship repair and maintenance for the United States Navy and commercial customers.

Sediment Quality. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) compared sediment chemistry levels found at the Shipyard Sediment Site to various sediment quality guidelines (SQGs) as well as background reference sediment chemistry levels found in other parts of present-day San Diego Bay. The purpose of this comparison was to evaluate: (1) whether sediment chemistry levels at the Shipyard Sediment Site exceeded background conditions in San Diego Bay; and (2) the potential threat to aquatic life from chemical pollutants detected in the marine sediment (San Diego Water Board, 2011).

The health risk assessment for the Tentative CAO determined that the chemicals posing theoretical increased cancer risks include inorganic arsenic and polychlorinated biphenyls (PCBs). The chemicals posing theoretical increased noncancer risks include cadmium, copper, mercury, and PCBs. Potential risk is also recognized to aquatic dependent wildlife from benzo(a)pyrene (a polynuclear aromatic hydrocarbon [PAH]), PCBs, copper, lead, mercury, and zinc.

Contaminants of Concern. Primary contaminants of concern (COCs) were defined by the San Diego Water Board as COCs meeting the following criteria:

- Greatest exceedance of background, suggesting a strong association with the Shipyard Sediment Site;
- Highest magnitude of potential risk at the Shipyard Sediment Site; and
- Higher potential for exposure reduction via remediation.

Secondary COCs were defined as COCs meeting the following criteria:

- Lower concentrations relative to background, suggesting a lower degree of association with the Shipyard Sediment Site; and
- Highly correlated with primary COCs and would be addressed in a common remedial footprint.

The results of the multiple-lines-of-evidence evaluation performed for the Shipyard Sediment Site resulted in the selection of the following primary COCs (copper, mercury, PAHs and high molecular weight PAHs [HPAHs], PCBs, and tributyltin [TBT]) and secondary COCs (arsenic, cadmium, lead, and zinc):

- **Primary COCs**
  - **Copper:** Although copper is an essential human nutrient, large intakes of copper can cause liver or kidney damage, or even death in cases of extreme exposure. Short periods of exposure to levels above the United States Environmental Protection Agency's (U.S. EPA) Action Level of 1.3 parts per million (ppm) can cause gastrointestinal disturbance, including nausea and vomiting.
  - **Mercury:** Methyl mercury is the form of mercury that builds up in the tissues of fish and is the most toxic. It affects the immune system, alters genetic and enzyme systems, and damages the nervous system, including coordination and the senses of touch, taste, and sight. Methyl mercury is particularly damaging to developing embryos, which are five to ten times more sensitive than adults. Studies found that offspring born of women exposed to methyl mercury during pregnancy have exhibited a variety of developmental neurological abnormalities, including the following: delayed onset of walking, delayed onset of talking, cerebral palsy, altered muscle tone and deep tendon reflexes, and reduced neurological test scores.
  - **PAHs (HPAHs):** PAHs are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances such as tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

    The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens. Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when the animals breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to the animal's skin (skin cancer) (Agency for Toxic Substances and Disease Registry [ATSDR], 1996).
  - **PCBs:** The U.S. EPA has classified PCBs as "probable human carcinogens." Studies have suggested that PCBs may play a role in inducing breast cancer. Studies have also linked PCBs to increased risk for several other cancers, including liver, biliary tract, gall bladder, gastrointestinal tract, pancreas, melanoma, and non-Hodgkin's lymphoma. PCBs may also cause noncarcinogenic effects, including reproductive effects and developmental effects (primarily to the nervous system). According to the U.S. EPA, "some human studies have also suggested that PCB exposure may cause adverse effects in children and developing fetuses while other studies have not shown effects. Reported effects include lower IQ scores, low birth weight, and lower behavior assessment scores."

- **TBT:** TBT is a major component of antifouling paints. Antifouling paints are used to prevent growth and attachment of marine organisms by continuously releasing toxic substances into the water. TBT is extremely toxic to aquatic life and is known to cause severe reproductive effects in aquatic organisms. TBT is extremely stable and resistant to natural degradation in water. Because of its chemical properties and widespread use as an antifouling agent, concerns have been raised over the risks it poses to both freshwater and saltwater organisms.

- **Secondary COCs**
  - **Inorganic Arsenic.** Arsenic is strongly associated with lung and skin cancer in humans and may cause other internal cancers as well. Skin lesions, peripheral neuropathy, and liver and kidney disorders are commonly associated with chronic arsenic ingestion.
  - **Cadmium.** Kidney toxicity is the primary concern with cadmium exposure. Chronic exposure to cadmium may also include anemia and bone disorders, including osteomalacia, osteoporosis, and spontaneous bone fractures. Some studies have suggested an association between neurotoxicity and cadmium exposure at levels below those that cause kidney toxicity. According to the U.S. EPA, reproductive and developmental toxicity have been associated with cadmium ingestion.
  - **Lead.** Lead is a naturally occurring bluish-gray metal found in small amounts in the Earth's crust. Lead can be found in all parts of our environment. Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Paints used at the shipyard site include lead and zinc chromate. Lead can affect almost every organ and system in the body. The main target for lead toxicity is the nervous system, both in adults and children. Because of health concerns, lead from gasoline, paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years (ATSDR, 2007).
  - **Zinc.** Zinc is one of the most common elements in the Earth's crust. It is found in air, soil, and water, and is present in all foods. Pure zinc is a bluish-white shiny metal. Zinc has many commercial uses as coatings to prevent rust, in dry cell batteries, and mixed with other metals to make alloys such as brass and bronze. Zinc combines with other elements to form zinc compounds. Common zinc compounds found at hazardous waste sites include zinc chloride, zinc oxide, zinc sulfate, and zinc sulfide. Zinc compounds are widely used in industry to make paint, rubber, dyes, wood preservatives, and ointments. Elevated levels can affect human health and the environment (ATSDR, 2005)

Five Staging Areas. The existing conditions of the five staging areas are:

- **Staging Area 1, 10th Avenue Marine Terminal and Adjacent Parking:** Staging Area 1 (the 10th Avenue Marine Terminal area) is estimated to provide a total of approximately 48 acres of potentially usable area (not covered by structures) for staging and dewatering activities: one 36-acre area directly adjacent to docks where barges could be unloaded, and five parking areas approximately 1 mile away from the barge unloading areas, ranging in size from roughly 0.2 acre to 12 acres. However, the actual usable space is likely to be reduced to provide access to existing structures, create haul routes, and to optimize the final design of the dewatering containment areas. Staging Area 1 is located approximately 0.4 mile from the nearest southbound access to Interstate 5 (I-5). Perkins Elementary School and the Barrio Logan College Institute are located approximately 0.1 mile and 0.05 mile, respectively, from Staging Area 1. The Logan Heights Family Health Center is located approximately 0.2 mile from Staging Area 1.
- **Staging Area 2, Commercial Berthing Pier and Parking Lots Adjacent to Coronado Bridge:** Staging Area 2 (the Commercial Berthing Pier area) would provide approximately 11 acres of potentially usable area for staging and dewatering activities. These 11 acres are divided among six areas ranging from 0.6 acre to 2.7 acres. Four areas totaling approximately 6.75 acres are located adjacent to the Commercial Berthing Pier area, while the remaining 5 acres of the potentially usable dewatering area are located adjacent to the Coronado Bridge, which is located approximately 0.3 to 0.5 mile from the Commercial Berthing Pier area. Staging Area 2 is located approximately 0.5 mile from the nearest southbound access to I-5. Perkins Elementary School and Barrio Logan College Institute are located approximately 0.2 mile and 0.16 mile, respectively, from Staging Area 2.
- **Staging Area 3, SDG&E/BAE Systems/BAE Systems and NASSCO Parking Lot:** Staging Area 3 (the SDG&E/BAE Systems parking areas) would provide approximately 6.5 acres of potentially usable area for staging and dewatering activities. These 6.5 acres are divided among 10 areas ranging from 0.4 acre to 1.0 acre in size. Five areas totaling approximately 3.5 acres are located adjacent to the BAE Systems Leasehold, while the remaining 3 acres of potentially usable dewatering area are located at five parking areas located along East Belt Street, up to 0.4 mile from the BAE Systems pier. Staging Area 3 is located approximately 0.5 mile from the nearest southbound access to I-5. No K-12 schools are located within 0.25 mile of Staging Area 3; however, Mercado Head Start and several family child care businesses are located within 0.25 mile of Staging Area 3.
- **Staging Area 4, NASSCO/NASSCO Parking and Parking Lot North of Harbor Drive:** Staging Area 4 (the NASSCO parking and parking lot north of Harbor Drive) would provide approximately 3.9 acres of potentially usable area for staging and dewatering activities. These 3.9 acres are divided among four areas ranging from 0.4 acre to 1.4 acre in size. The areas are not located adjacent to a barge off-loading area and would require trucking to the dewatering sites. Staging Area 4 is located approximately 0.3 mile from the nearest southbound access to I-5. No K-12 schools are

located within 0.25 mile of Staging Area 4; however, several family child care businesses are located within 0.25 mile of Staging Area 4.

- **Staging Area 5, 24th Street Marine Terminal and Adjacent Parking Lots:** Although Staging Area 5 (the 24th Street Marine Terminal) is located approximately 3 miles south of the project site, barges could be off-loaded directly at the Terminal. The 24th Street Marine Terminal would provide approximately 145 acres of potentially usable area for staging and dewatering activities. These 145 acres are divided among six areas ranging from 3.7 acres to 74 acres in size. Approximately 74 acres are located directly adjacent to barge unloading areas. The remaining potential dewatering areas are within approximately 0.5 mile of the barge unloading zone. Staging Area 5 is located approximately 0.4 mile from the nearest southbound access to I-5. No K-12 schools or other sensitive receptors have been identified within 0.25 mile of Staging Area 5.

Records Search. A comprehensive review of available environmental databases was performed by Environmental Data Resources (EDR), including federal, state, and local hazardous waste records at or adjacent to the project site and the five potential dewatering areas. The Shipyard Sediment Site and staging areas are not on or adjacent to a listed site on the active California Environmental Protection Agency Hazardous Waste and Substances Sites (Cortese) list, which is compiled annually by the State Water Resources Control Board (State Water Board), the Integrated Waste Management Board, and the Department of Toxic Substances Control (DTSC) pursuant to Government Code section 65962.5. However, there are 13 sites with historical Cortese listings within 0.25 mile of the project site:

- Continental Maritime
- BAE Systems San Diego Ship Repair
- ISP Alginates Inc.
- Silvergate Power Plant
- Chevron Service Station (2351 Harbor Drive)
- Atlantic Richfield Company (ARCO) San Diego Terminal (2295 Harbor Drive)
- Pro-Line Paints Company
- IMS Recycling Services, Inc.
- Markel Johnson (2697 Main Street)
- Eddie S. Specialists
- Giolzetti and Lulue
- Nex Gas 28th St.
- NASSCO Building 70

These sites are not included on the active Cortese list. This historical list documents sites with historical releases that have been evaluated or remediated such that they are no longer believed to be a source of potential impacts.

4.3.1.2 Surrounding Conditions

A combined EDR report was compiled for the project site and Staging Areas 1, 2, and 3 due to the close proximity of these areas. The following listings identified potential groundwater or soil impacts within 0.25 mile of the staging areas:

- No sites on the current Cortese lists
- 36 sites on the Historical Cortese lists
- 1 site on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list
- 2 sites on the federal Resource Conservation and Recovery Act Corrective Action Sites (RCRA CORRACTS) list
- 15 sites on the DTSC ENVIROSTOR database
- 59 cases in the State Water Board leaking underground storage tank (LUST) system
- 1 solid waste landfill
- 44 State Water Board Spills, Leaks, Investigations, and Cleanups (SLIC) program sites
- 64 sites currently under review by the San Diego County Site Assessment and Mitigation Program (SAM)
- 68 California Hazardous Material Incident Reporting System (CHMIRS) reports

A separate EDR report was compiled for Staging Area 4. The following listings identified potential groundwater and soil impacts within 0.25 mile of the proposed staging areas:

- No sites on the current Cortese list
- 15 sites on the Historical Cortese list
- 2 sites on the DTSC ENVIROSTOR database
- 20 cases in the State Water Board LUST system
- 14 SLIC sites
- 38 CHMIRS reports

Staging Area 5 had an individual EDR report compiled. The following listings identified potential groundwater and soil impacts within 0.25 mile of the proposed staging areas:

- No sites on the current Cortese list
- 8 sites on the Historical Cortese list
- 18 cases in the State Water Board LUST system
- 15 SLIC sites
- 5 sites on the DTSC ENVIROSTOR database
- 1 solid waste landfill
- 21 sites currently under review by SAM
- 7 CHMIRS sites

4.3.2 Regulatory Setting

Federal regulations related to hazardous materials and wastes include:

- Occupational Safety and Health, Title 29, Code of Federal Regulations (CFR), Regulations for General Industry (Part 1910) and Construction (Part 1926)
- U.S. EPA, Title 40 CFR, National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Part 61, Subpart A
- U.S. EPA, Title 40 CFR 700–799 (Toxic Substances Control Act)
- United States Department of Transportation (U.S. DOT) Regulations, Title 49 CFR

State and local regulations related to hazardous materials and wastes include:

- Title 8 California Code of Regulations (CCR), California Occupational Safety and Health Administration (Cal-OSHA) Regulations, Chapter 4, Division of Industrial Relations, General Industry Safety Orders and Construction Safety Orders
- Title 22 CCR, Social Security, Division 2, Department of Social Services—Department of Health Services, and Division 4, Environmental Health
- Title 17 CCR, Public Health, Division 1, State Department of Health Services, Chapter 6—Lead Poisoning Prevention Program
- San Diego County Air Pollution Control District (APCD), Rules and Regulations

Water quality regulations are discussed in Section 4.2, Hydrology and Water Quality. Certain statutory provisions contained in the Health and Safety Code, Fish and Game Code, Harbors and Navigation Code, and the Food and Agriculture Code supplement the water quality provisions of the California Water Code. The California Health and Safety Code (HSC) contains provisions for the regulation of hazardous waste and hazardous materials. The Harbors and Navigation Code has statutory provisions to prevent the unauthorized

discharges of waste from vessels to surface waters. The Fish and Game Code has statutory provisions to prevent waste discharges deleterious to fish, plant, animal, or bird life.

The DTSC protects California and its residents from exposure to hazardous wastes. DTSC operates programs regulating hazardous material management by overseeing cleanups; preventing releases of hazardous waste by overseeing those who generate, handle, transport, store, and dispose of waste; taking enforcement actions against those who fail to manage hazardous waste properly; exploring and promoting means of preventing pollution, as well as encouraging reuse and recycling; evaluating soil, water, and air sampling conducted at investigation and cleanup sites and developing new analytical methods; and practicing other environmental sciences, including toxicology, risk assessment, and technology development.

The San Diego County Department of Environmental Health (DEH) regulates, among other things, aboveground and underground storage tanks, monitoring wells, and medical and hazardous materials and waste. In addition, the DEH also serves as the Solid Waste Local Enforcement Agency (LEA) and is responsible for regulating active and closed solid waste facilities.

The U.S. DOT has the regulatory responsibility for the safe transport of hazardous materials by air, rail, highway, and water. The U.S. DOT promulgated a national safety program to minimize the risks to life and property inherent in commercial transportation of hazardous waste. The U.S. DOT also evaluates safety risks, develops and enforces standards for transporting hazardous material, educates shippers and carriers on proper handling and documentation procedures, investigates hazardous materials incidents and failures, and provides assistance to improve emergency response to incidents.

The San Diego Harbor Police has jurisdiction for enforcing statutes within the Harbors and Navigation Code throughout the five member cities of the Port District, including San Diego Bay. These regulations include operation of vessels, boat safety, and navigation rules.

4.3.3 Thresholds of Significance

Threshold 4.3.1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

Threshold 4.3.2: 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

Threshold 4.3.3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school

Threshold 4.3.4: 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, create a significant hazard to the public or the environment

Threshold 4.3.5: For a project located within an airport land use plan or, where such plan has not been adopted, within 2 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?

Threshold 4.3.6: For a project within the vicinity of private airstrip, would the project result in a safety hazard for people residing or working in the project area

Threshold 4.3.7: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

Threshold 4.3.8: Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

4.3.4 Impacts and Mitigation

The Initial Study (IS) determined that the proposed project would have no impacts with respect to the following: presence on a hazardous materials site list; emergency response plan or emergency evacuation plan implementation; or risk of wildland fires. Therefore, these issues (Thresholds 4.3.3, 4.3.7, and 4.3.8) are not addressed further in this PEIR.

The IS also determined that the proposed project would have no impacts with respect to the proximity to existing schools. As described above, Perkins Elementary School is within 0.25 mile of Staging Areas 1 and 2. As described below, potential risks associated with sediment transport to the staging area, including airborne release of drying agents and particulates and sediment spillage during loading, are addressed in Mitigation Measure 4.3.6, Sediment Management Plan, that specifies procedures for load limits, haul truck operation, and driver training. Therefore, potential impacts to schools (Threshold 4.3.3) are addressed within the context of the project impacts described below and are not discussed further in this PEIR.

In addition, the IS determined that the proposed project would have no impacts with respect to the following: safety hazard related to an airport land use plan, airport, or private airstrip. An Airport Land Use Compatibility Plan (ALUCP) was adopted by the San Diego Association of Governments (SANDAG) in 1992 (and subsequently amended in 2004) for the San Diego International Airport (SDIA). The ALUCP discusses the Plan's assumptions, defines the Airport Influence Area (AIA), provides projected noise contours and flight activity zones, identifies nonconforming uses and provides plan recommendations and a discussion of the ALUCP development review process. The AIA represents the boundary of

the ALUC's planning and review authority for SDIA. The AIA for SDIA was delineated using the projected 60-decibel (dB) Community Noise Equivalent Level (CNEL) noise contour.

The project area (sediment removal site, staging areas, and haul routes) is not within the SDIA AIA as documented in the ALUCP (as amended 2004), nor is the proposed project a noncompatible use that would conflict with the ALUCP. The ALUCP also discusses further incompatible uses that are located outside the AIA. The Plan states "Any use, whether within or outside the AIA, that the FAA (Federal Aviation Administration) finds to be a "hazard" or an "obstruction which would have a significant adverse impact," should be determined not to be in conformance with the ALUCP. This provision would ensure that approval of a discretionary use that might otherwise be acceptable would not create a hazard to the operation of the AIA. The proposed sediment removal project would not create any such hazard because no obstruction, tall structures or incompatible land uses (hospitals, churches, schools, etc. as documented in the ALUCP) are proposed as part of the project. No impact relating to compatibility with airport land use plans is anticipated. Therefore, this topic (Thresholds 4.3.5 and 4.3.6) will not be discussed further in this PEIR.

4.3.4.1 Potentially Significant Impacts

There are several steps that would be implemented to clean up and abate the contamination at the Shipyard Sediment Site. Each of these steps has the potential to release hazardous materials, resulting in a significant hazard to the public or the environment. The steps are listed below and then described in detail in this section.

- **Dredging:** Dredging involves removal of sediment from the bottom of San Diego Bay and placement onto a barge.
- **Sediment Transport to Unloading Area:** The sediment is transported from the dredging location via a barge pulled by a tugboat.
- **Sediment Unloading/Transport to Staging Area:** This involves placement of the sediment in the staging area.
- **Sediment Drying/Dewatering:** Once the sediment is placed in the staging area, it undergoes a drying/dewatering process.
- **Load Out, Transport, and Disposal:** This process involves the removal and disposal of the sediment once it has dried out.

There are two scheduling options for completion of the remedial action. The first scheduling option would occur for 7 months of the year and is expected to take 2 to 2.5 years to complete. The second scheduling option is continuous dredging operations that are expected to take approximately 12.5 months. Regardless of the selected scheduling option, sediment removal efforts would be followed by a period of postremedial monitoring activities, as required in the Tentative CAO.

Dredging. A Dredging Management Plan (DMP) containing Standard Operating Procedures (SOPs) would be prepared for the dredging operations at the project site. The purpose of the DMP is to identify step-by-step procedures to complete dredging operations safely, in an efficient manner, and to avoid releases of hazardous materials into the environment. A DMP addresses several potential issues related to dredging and presents potential solutions. This includes the identification of dredging needs; a methodology and process for determining dredging priorities and scheduling; the feasibility and requirements for expedited permitting; a Quality Assurance Project Plan (QAPP) to comply with regulatory requirements; alternatives for control and operation of dredging equipment; and Best Management Practices (BMPs) to implement in the event of equipment failure and/or repair.

While there is not a final dredging design for the project, the proposed sediment removal operations would most likely involve the use of a barge-mounted crane equipped with an environmental bucket such as the Cable Arm Environmental Clamshell®. The actual equipment to be used (i.e., size of the crane and buckets) would depend on the final design. Once the clamshell/bucket bites into the sediment, it would be lifted to the surface and the sediment would be deposited into a separate material barge. This operation continues until the material barge is full, and at that time it is transported to an unloading area via a tugboat. Following removal in an unloading area, the barges (dredge and material) are repositioned via a tugboat to the next area to be dredged. This process would be repeated until the entire project area is dredged.

Dredging operations would be configured to avoid sediment resuspension. Double floating silt curtains will be used; one silt curtain will be placed around the barge being loaded with sediment, and an outer silt curtain will surround the remediation site (Figure 4.3-1). The silt curtain would be supported by a floating boom in open water areas (such as along the bayward side of the dredging areas). Along pier edges, the contractor would have the option of connecting the silt curtain directly to the structure. In either case, the contractor would be required to continuously monitor the silt curtain for damage, dislocation, or gaps and immediately fix any locations where it is no longer continuous or where it has loosened from its supports.

The bottom of the silt curtain surrounding the dredging unit shall be weighted with ballast weights or rods affixed to the base of the fabric. These weights are intended to resist the natural buoyancy of the geotextile fabric and lessen its tendency to move in response to currents. Extending the silt curtain that surrounds the dredging unit farther or all the way to the bay floor would be problematic and potentially counterproductive. This is because at lower tides the geotextile fabric would be in contact with sediments at the mudline, potentially folding up on the seabed, and when subsequently moved by current flow or lifted by rising tide it would cause increased sediment disturbance, thereby generating an additional source of sediment resuspension and turbidity. Therefore, the floating silt curtain around the

dredging unit will be deployed in a manner that includes a gap above the seafloor to allow for the tidal ranges and fluctuations, and to sufficiently allow for dredge operation.

The outer silt curtain surrounding the remediation site will be deployed in a manner dependent on site-specific conditions including, but not limited to, depth, current velocities, existing infrastructure for curtain deployment, and proximity of sensitive habitat (i.e., essential fish habitat).[1] Where feasible and applicable, curtains should be anchored and deployed from the surface of the water to just above the substrate. If necessary, silt curtains with tidal flaps may be installed to facilitate curtain deployment in areas of higher flow. (See Mitigation Measure 4.2.3 in the Hydrology and Water Quality Section of this PEIR.)

Proper design and SOPs will be incorporated into the DMP as specified in Mitigation Measure 4.3.1. Therefore, impacts related to silt curtain placement would not be significant with mitigation incorporated.

Accidental Oil or Fuel Spills. Accidental oil or fuel spills from the crane or tugboat could occur during dredging operations, which could impair and/or degrade water quality in San Diego Bay, depending on the severity of the spill. The potential for the occurrence of petroleum-product leaks or spills is low, but the potential for long-term impacts is moderate to high if a leak or spill were to occur. The potential for significant impacts related to accidental spills would be mitigated to a less than significant level through application of secondary containment and implementation of a comprehensive DMP that identifies all the steps and procedures to stop the leak/contain the spill and clean up the spill. Therefore, implementation of Mitigation Measures 4.3.1 (which requires application of secondary containment around all fuel and oil storage facilities), 4.3.2 (which requires implementation of a comprehensive DMP, including specific procedures), and 4.3.3 (which includes procedures for equipment or operational failures) would reduce potential impacts to less than significant.

Resuspension of Sediment During Silt Curtain Placement. There is the potential for resuspended sediment to be introduced into the water column during silt curtain placement or redeployment if the curtain is extended too close to San Diego Bay floor. Resuspension of sediment could disturb contaminated sediment.

Mitigation measures to minimize resuspension during silt curtain placement include using silt curtains designed such that the curtain is reefable (flexible folding and unfolding) so it can be extended during high tide and retracted during low tide based on the expected tidal variation during project implementation. Regular reefing events will be scheduled

[1] 2008. United States Army Corps of Engineers: Engineer Research and Development Center. Technical Guidelines for Environmental Dredging of Contaminated Sediments. ERDC/EL TR-08-29.

to ensure that the silt curtain is the appropriate length for the tidal conditions to prevent excess curtain from scouring the bottom due to wind or wave energy.

Personnel responsible for deployment of the silt curtains will be trained in proper deployment techniques. Supervisors should monitor silt curtain maintenance operations and adjust BMPs as required to reduce the potential for sediment suspension. Through implementation of proper design, training, and BMPs, sediment resuspension related to silt curtain placement would be mitigated to a less than significant level. Proper design and training would be incorporated into the DMP as specified in Mitigation Measure 4.3.1. Therefore, impacts related to silt curtain placement would not be significant with mitigation incorporated.

Resuspension Due to Operator Overfilling Bucket. Overfilling of the dredge bucket during sediment removal operations would result in resuspension. Resuspended sediment from environmental dredging operations can settle onto areas already dredged and reduce the ability of the dredging program to reach target cleanup goals due to increased residual COC concentrations in the dredge area.

The DMP will require that the dredging equipment contain instrumentation that includes bucket transducers, design cut information, and in-cab displays to provide the operator with real-time "dredge cut" data so that overfilling can be avoided. Pre-shift inspection of this instrumentation by the operator to document that it is functioning correctly would also reduce the potential for sediment suspension due to equipment failure. Through implementation of these requirements, which are included in Mitigation Measure 4.3.2, potential overfilling impacts would be less than significant.

Debris Preventing the Dredge Bucket from Fully Closing. If large debris is present in the dredge area, it may lodge in the dredge bucket and prevent its full closure, thereby allowing sediment to escape from the bucket and causing resuspension of sediment.

A debris sweep of the project area prior to dredging can substantially reduce dredge bucket seal problems due to debris obstructions. Therefore, the dredge buckets will be equipped with four indicator switches at the four corners (i.e., left, right, top, bottom) of the clamshell seal. The switches are positioned in these locations to inform the operator if and where the bucket is failing to close. The indicator switch data will be relayed to instruments inside the cab to allow the operators to know how to reposition the bucket to avoid the obstruction that is preventing closure. The use of bucket indicator switches would reduce the potential for impacts from bucket nonclosure to a less than significant level. Pre-shift inspection of this instrumentation by the operator to document that it is functioning correctly would also reduce the potential for sediment suspension due to

equipment failure. Through implementation of these requirements, which are included in Mitigation Measure 4.3.2, potential bucket seal impacts would be less than significant.

Resuspension of Sediment During Barge Positioning Due to Vessel Propeller Wash. Resuspension of sediment particles within the water column due to vessel propeller wash is a common issue during operations in shallow waters. Resuspension of sediment particles within the dredge area would lead to reduced effectiveness of dredging operations due to increased residual COC concentrations in the dredge area.

The potential impact related to propeller wash is mitigated through identification of potential problem areas by comparing approximate filled barge draft (how much the barge sinks into the water) versus the distance between the barge hull and the bay floor along the haul route. A filled barge would lie lower in the water, effectively decreasing the depth to the bottom of the bay. "Shallow" areas will be mapped and provided to the dredge operators and oversight team so they could be avoided and/or closely monitored during passage. In addition, specification of load-controlled barge movement, line attachment, and horsepower requirements of tugs and support boats at the project site will also reduce the potential resuspension of sediment due to propeller wash. Incorporation of these two requirements, which are included in Mitigation Measure 4.3.2, would reduce potential impacts to less than significant.

Resuspension of Sediment Due to Damage of Silt Curtain During Dredging. Damage to the silt curtain during the dredging operations typically occurs when the dredge bucket comes in contact with the curtain, the curtain becomes entangled with the propellers of the tug moving either the dredge or material barges, or passing ships are too close to the operations and draw the curtain into their propellers. Not only does this cause an instantaneous release of suspended sediments from the dredging containment area, but also causes project delays until the silt curtain can be repaired or replaced. The failure or damage of a silt curtain during dredge operations may lead to impacted sediment settling outside of the treatment area, resulting in a larger area impacted by site-related COCs.

Mitigation for this type of impact requires that the silt curtain be appropriately located during deployment, conforming to the final design locations. Proper lighting will be required in accordance with local, state, and federal regulations, including a notice to mariners. Daily preplanning of barge movement and coordination with the project, shipyard, and Port District personnel regarding pre-movement and movement notifications are also required.

A contingency plan is required to be developed prior to project initiation that identifies the notifications and actions to be taken in the event of an accidental breach of containment. The plan will include provisions for emergency silt curtain deployment,

suspension of dredging in the vicinity of the damaged silt curtain until the area can be resecured, and an incident reporting and review procedure to evaluate the causes of the accidental breach and proposed steps to avoid further breaches. These practices will significantly reduce the potential for sediment impacts related to accidental silt-curtain breach. The mitigation discussed above is included in the DMP specified in Mitigation Measure 4.3.2 and the Contingency Plan specified in Mitigation Measure 4.3.3; therefore, impacts related to the potential to damage the silt curtain would be less than significant with mitigation incorporated.

Spillage of Sediment into the Water Column Due to Overloading of the Dredged Material Barge. This type of impact usually occurs when operators attempt to maximize the load within the material barges. Overloaded barges can result in the sloughing of dredged sediment from the barge during transport to the off-loading area. Sediment sloughing off a loaded barge may lead to either resuspension of sediment within the treatment area, as described above, or dispersal of contaminated sediment outside the treatment footprint if the incident occurs outside of the dredge area during transport to the dewatering area.

This impact is mitigated through the development of load limits for each material barge with respect to the bathymetry (water depth and bay topography) along the transit route. Additionally, marking the material barges by painting the appropriate draft level helps the operator visualize when the barge is reaching the target load. A contingency plan will also be developed that outlines the actions and notifications necessary if barge overfilling occurs. At a minimum, this plan will include a review of defined load limits and loading procedures and practices to mitigate further overfilling incidents. These combined practices would reduce the potential for sediment impacts related to barge overfilling to a less than significant level. These requirements are specified in Mitigation Measures 4.3.2 and 4.3.3; therefore, significant impacts would not occur.

Contact with Sediment On or Around the Barge During Loading. Some contact with sediment by workers during loading would occur regardless of the standard of care taken during the loading process. Contact with impacted sediment by personnel may lead to acute and/or chronic health effects depending on the contaminant type, concentration, and exposure route.

Operators would be trained in procedures to minimize spillage of dredged material onto the sides, stern, or bow of the material barges during the loading operations. To avoid direct contact with contaminated sediment, personnel working on or around barges (dredging and material) would be equipped with appropriate Personal Protective Equipment (PPE), would follow standard Health and Safety Plan (H&S Plan) guidelines as developed for the project site, and would be certified under Occupational Safety and

Health Administration (OSHA) 29 CFR 1910.120 and trained in decontamination and waste containment procedures. These measures would reduce potential impacts to barge workers from contact with impacted sediments to a less than significant level. Training, personal protection, and certification requirements would be set forth in the H&S Plan for the project, which is included as Mitigation Measure 4.3.4. Because these measures are included in Mitigation Measure 4.3.4, impacts related to contact with sediment would not be significant with mitigation incorporated.

Cable Snap Allowing Loaded Bucket to Enter Water Column. Poor dredging equipment maintenance could potentially lead to a snapped cable on the clamshell bucket, allowing a loaded bucket to enter the water column. This may lead to resuspension of sediment.

Shear Pin Breakage Allowing Bucket to Open Prematurely. Poor dredging equipment maintenance could potentially lead to the breakage of a shear pin on the clamshell bucket, which would allow a loaded bucket to open before proper positioning over the barge and dredged material to enter the water column. This would lead to resuspension of sediment from the loaded bucket.

Although these types of impacts are rare, the crane operator would be required to check the condition of every aspect of the crane, including the integrity of the cable and the dredge bucket during a pre-shift inspection. This inspection would cover the bucket(s) as well as the crane to insure proper operations. A pre-shift inspection would reduce the potential for unforeseen impacts related to sudden equipment failure to a less than significant level. Mitigation Measure 4.3.2 requires pre-shift inspection of equipment used for the project; therefore, these potential impacts would not be significant with mitigation incorporated.

Sediment Transport to Unloading Area. Once the materials barge is loaded, the sediment would be transported to the unloading area and transferred to dry land.

Barge or Tug Collision with Merchant or Military Vessel. The movement of barges and tugs to and from the project site contains inherent risks associated with maritime operations. There is the potential for a release of sediments stored on the barge during a vessel-on-vessel collision.

The contractor would identify and establish lines of communication with the San Diego Port or Harbor Master. Project personnel requiring notification of barge movement would be identified prior to project execution. Most dredging companies operating in

this environment are very aware of the lines of communication for barge or vessel movement; however, specific project requirements such as speed, wake/no wake, and notification to project personnel using air horns would be incorporated into the standard procedures for this activity to mitigate the potential for accidental vessel collision to a less than significant level. These requirements are incorporated into Mitigation Measure 4.3.5; therefore, the potential for vessel collision would be less than significant.

Sediment Unloading/Transport to Staging Area. At the sediment unloading area, the material barge is moored and the unloading operations begin. This sediment unloading operation is normally accomplished using one or more track-mounted excavators (track-mounted lattice boom cranes have also been employed). The types of buckets used for the sediment unloading operations range from standard open excavator buckets to hydraulically closed buckets, and in the case of a boom crane, a clamshell bucket.

During unloading operations, the excavator or crane will grab a volume of dredged material and swing from the barge to the trucks. Once the trucks are loaded, they move the dredged material to either a staging area to be stockpiled or a treatment area to be mixed with pozzolanic agents (siliceous or siliceous/aluminous materials) that facilitate drying.

Depending on staging area conditions, off-road or on-road hauling vehicles would be used to transport the material from the unloading area to the treatment or stockpile area. The transportation routes, speeds, and rights-of-way would be developed prior to project implementation to minimize potential safety or hazard impacts.

Transferring Sediment from Barge to Land. There is the potential for the operator to overfill the bucket, causing spillage into the water column and/or on the dock adjacent to the barge, which would lead to sediment suspension and potential contamination of the bay floor adjacent to the offloading area. This would be minimized through implementation of the operator training specified in the DMP (Mitigation Measure 4.3.2).

Prevention of water column impacts would be accomplished by controlling the swing radius of the unloading equipment. A spillage plate would be used to prevent the offloaded sediment from falling directly into the water beneath the swing radius of the unloading equipment at the off-load location.

Control of spillage on the dock would be accomplished by sloping the spill plate into a collection sump to allow water and mud that may fall to be collected (Figure 4.3-2). The sump will require periodic pumping as it is filled during operations. Spilled material would be removed from the sump and placed into the dewatering piles and then disposed off site with the dredged sediment.

A power wash unit would be utilized to remove any spilled sediment from the excavator arm and transport vehicles. In the event that sediment is splashed onto equipment, it would be quickly washed into the collection sump. Implementation of these measures would reduce potential spillage impacts during unloading to a less than significant level. Because these measures are included as required BMPs in Mitigation Measure 4.3.6, impacts would be less than significant.

Sediment Spilling from Transport Vehicle during Transport to the Staging Area. Overfilling of a transport vehicle can cause sediment to overflow from the vehicle during transport to the sediment staging and dewatering areas. Similarly, excess vehicle speed, rapid deceleration or acceleration, or tight cornering during transport to the treatment area could result in spillage of sediment during transport. These situations have the potential to spread sediment-related impacts along the designated sediment haul route.

Overfilling would be prevented through restriction of the number of buckets allowed to be placed in each vehicle and/or identification of a fill line on the haul truck. The amount of material that can safely be placed in each vehicle would be a function of the sediment's physical consistency, as high water content sediments will have more of a tendency to spill during transport, as well as the transport vehicle's size and dimensions. The contractor would establish the load limit during the first load of each day as part of the DMP, as specified in Mitigation Measure 4.3.2. By placing a set volume of sediment into each vehicle, the potential for accidental spillage of sediment would be reduced to less than significant with mitigation.

Spillage related to haul truck operation would be prevented by restricting speed limits of loaded vehicles to 15 miles per hour (mph) for on-site operations and 25 mph on surface streets. Drivers would be trained to allow for proper stopping distances and cornering speed. Driving precautions specified in the SOPs as well as driver training would reduce potential spillage impacts from haul truck operation to less than significant levels.

Mitigation Measure 4.3.6, Sediment Management Plan, specifies procedures for load limits, haul truck operation, and driver training; therefore, impacts related to transport to the staging area would be less than significant.

Sediment Drying/Dewatering. Drying/dewatering of sediments (e.g., with drying agents) is anticipated to be required to meet transport and disposal requirements. The dewatering areas are typically set up to allow vehicles to enter, drop their load, and exit. The dewatering and sediment mixing areas normally consist of asphalt pads with or without underliners, which are sloped to a collection area for storm water and vehicular decanted water. Typically, these areas are divided into discrete locations that can accommodate a full day of dredge

production. Sediment drying/dewatering would occur at one or more of the five staging areas identified in Section 4.3.1.1.

The sediment would require time to dry and would be staged pending analytical results in order to make appropriate disposal decisions/certifications. A single day's production may typically require a 5-day holding time prior to load out, transport, and disposal.

Sediment drying usually involves the introduction of drying agents such as Portland cement, the amount of which is determined during the final engineering design treatability testing. Regardless of volume required, the drying agents can be introduced into the sediment stockpile in three general ways:

- Simultaneous addition of sediment and drying agents into a pug mill that mixes the two together
- Surface casting of the drying agents onto the sediment stockpile and mixing with a track-mounted excavator
- Injection during mixing of the stockpile via a track-mounted excavator

Once a sediment stockpile meets the analytical and strength requirements, the material would be certified for disposal, manifested, loaded into on-road trucks (typically using a large-wheeled front-end loader), weighed to document compliance with U.S. DOT regulations, transported, and deposited at the selected disposal facility.

Water (decanted from sediment and any storm water in the staging area) would be managed by sloping the staging area to a common sump or pond (containment cell) or pumped to a series of tanks. The containment device(s) would be designed to meet a performance standard of "no discharge" so that storm water runoff cannot enter the bay or adjacent areas. The containment device(s) would also be designed to ensure that storm water present in surrounding areas cannot penetrate the containment area. Prior to discharge, the water would be tested to evaluate whether it meets discharge criteria for the San Diego Publically Owned Treatment Works (POTW) or if treatment is required prior to discharge. (See Mitigation Measure 4.2.13 in the Hydrology and Water Quality section of this PEIR.)

Airborne Release of Drying Agent. If drying agents are used, there is the potential for airborne dispersal of the agent if it is applied as a dry powder. The fine dust can be a respiratory irritant to workers and nearby receptors. This impact would be avoided through the application of liquid pozzolanic agents to the sediment stockpile and blending the materials. This requirement is included in Mitigation Measure 4.3.6; therefore, no significant impacts would occur with mitigation incorporated.

Airborne Release of Sediment Contaminants through Volatilization or Particulate Transport. There is the potential for sediment-related contaminants to be transported through volatilization to the atmosphere or for wind-blown particulate transport of dry sediment. The airborne distribution of sediment-related contaminants has the potential to result in COC-related health impacts to receptors in the vicinity of the staging areas. Impacts would be mitigated through implementation of a Sediment Management Plan that requires dust control, and fenceline and work area monitoring. Monitoring stations would be used to evaluate whether additional dust control methods or work stoppage during windy conditions are needed to prevent an airborne release of sediment. Since the COCs are not particularly volatile, the use of foam is not anticipated to be necessary to control volatilization. Implementation of these measures would reduce potential impacts to less than significant levels. The Sediment Management Plan, included as Mitigation Measure 4.3.6, includes these control measures; therefore, impacts would not be significant with mitigation incorporated.

Breach in Dewatering Pad Containment by Excavator. A breach in the dewatering pad could potentially occur if an excavator penetrates through the bottom of the pad while attempting to load sediment for transport. A breach in the dewatering pad could result in impacts from the impacted sediment to the soil or groundwater in the vicinity of the breach.

This impact would be avoided by either placing a layer of sand beneath the sediment to provide a visual indicator to the excavator operator that he/she is getting close to the containment liner, or the use of closely spaced railroad rails/K-rails to shield the containment liner. Because liner protective measures are included in Mitigation Measure 4.3.6, this potential impact is not significant with mitigation incorporated.

Decanted Water and Storm Water Containment Failure. There is the potential for the decanted water and storm water containment area to fail, resulting in release of untreated water from the treatment area. A release of storm water or decanted water from the containment area could result in impacts to soil or groundwater in the vicinity of the release and potentially flow back into the bay.

This impact can be avoided by proper design, construction, and operation of the decanted water and storm water containment area. The containment area typically consists of a small, depressed area within the drying/dewatering area, with containment berms around the area. Another design option is to pump and store water in aboveground tanks. Mitigation Measure 4.3.6 requires specific procedures for implementation and monitoring of the containment area; therefore, impacts related to release of sediment liquid would be less than significant with mitigation incorporated.

Load Out, Transport, and Disposal Operations. Prior to load out and transport, other activities that will be performed in the sediment drying/dewatering containment area are sampling and chemical analysis of the dewatered sediment, evaluation of the appropriate disposal options, and weigh-out in accordance with California Department of Transportation (Caltrans) regulations.

Load-out operations will take place within the sediment drying/dewatering containment area, which will be contained in a structure to be determined during the final engineering design. Load-out operations are typically performed using wheeled front-end loaders that load sediment into trucks located inside the contained area. Following loading, the trucks are typically power washed to prevent cross contamination onto the public roadways.

Worker Contact with Treated Sediment. Similar to contact with sediment in and around the barge during loading, worker contact with treated (solidified) sediment is unavoidable. There is the potential for contact with impacted sediment by personnel that may lead to acute and/or chronic health effects depending on the contaminant type, concentration, and exposure route.

To minimize impacts to workers, personnel working with the treated sediment would be equipped with appropriate PPE, will be certified under OSHA 29 CFR 1910.120, and will be trained in decontamination, use of PPE and respirators, and waste containment procedures. The site-specific H&S Plan would also identify specific task hazard analyses to mitigate potential impacts to workers from contact with impacted sediment. Implementation of these measures, identified in Mitigation Measure 4.3.4, would reduce potential worker contact with treated sediment to less than significant.

Sediment Spillage During Loading. During loading of vehicles for off-site disposal, some sediment may fall from the loading bucket onto the exterior of the vehicle or onto the hardscape of the loading area. This has the potential to impact soil, groundwater, or storm water in the vicinity of the loading area. To avoid this impact, trucks would be loaded within a contained area to confine sediment spilled during the loading process. In the process of exiting the dewatering/sediment drying area, the vehicles would be power washed to prevent cross contamination onto the roadways. This requirement is included in Mitigation Measure 4.3.6; therefore, potential impacts would be less than significant with mitigation incorporated.

Overfilling Transport Vehicles and Increasing Potential to Spill onto the Roadway. Overfill of transport vehicles can still lead to potential incidental spills of sediment onto the roadway. This has the potential to spread sediment-related impacts along the

transport route. Truck volumes would be limited to the rated load of the vehicle, and trucks will be covered and secured per Caltrans regulations during transport to the disposal facility to minimize potential impacts. Adherence to state regulations with respect to transport of sediment, as specified in Mitigation Measure 4.3.6, would reduce potential spillage from trucks to less than significant.

Transport and Disposal of Hazardous Materials. It is estimated that up to 15 percent (21,500 cubic yards [cy]) of the excavated sediment may be classified as California hazardous material. It is estimated that up to 1,500 truck trips would be required over an approximately 12.5-month period to transport this volume of sediment to Kettleman Hills Landfill, which is located approximately 300 miles north of the site. There is the potential for spills or accident conditions to occur during transportation, resulting in the release of sediment-related impacts to soil or groundwater in the vicinity of the accident. Depending on the concentration of COCs within the sediment, there may also be the potential for health effects to receptors in the vicinity of the accident. Sediment that is not hazardous will be disposed of at Otay Landfill.

Small quantities of hazardous materials such as fuels and oils will be routinely transported to the Shipyard Sediment Site for ongoing operations and maintenance of equipment for the duration of the project.

A Hazardous Materials Transportation Plan will be prepared in accordance with local, state, and federal transportation laws and will include procedures such as hazardous waste profiling, packaging, manifesting, U.S. EPA identification numbers (generator, transporter, and disposal facility), proper placarding and labeling, as well as emergency procedures. A Traffic Control Plan will be in effect for the transport and disposal of the dredged sediment and will provide for emergency vehicle access and right-of-way in the event of accidental spillage or traffic congestion. Implementation of these plans, specified in Mitigation Measures 4.3.7 and 4.3.8, would reduce potential impacts related to hazardous materials transport to less than significant.

In conclusion, the proposed project has the potential to create a hazard to the environment through the routine transport, use, or disposal of hazardous materials and upset and accident conditions involving the release of hazardous materials into the environment (Thresholds 4.3.1 and 4.3.2). However, these impacts are reduced to less than significant with the implementation of mitigation measures described above.

Environmental Justice. As described in Section 4.2, Hydrology and Water Quality, San Diego Bay has multiple designated beneficial uses including recreation uses, support of industrial and government employment in the harbor, and biological resource protection in the bay. Implementation of Mitigation Measures 4.3.1 through 4.3.8 will reduce impacts

related to hazards and hazardous materials to less than significant. These measures help to ensure that the proposed remediation project would not impair the beneficial uses of San Diego Bay in the short-term during project implementation, including those uses in which minority and/or low-income populations may participate (e.g., recreational boating and fishing, and industrial service supply). Also, the mitigation measures described above ensure that potential hazards associated with the landside operations (including truck routes and staging areas that are located near existing schools, parks, and residences) are less than significant. Therefore, although there is a high percentage of low-income and minority population in the project study area, the proposed project hazard impacts are less than significant with mitigation incorporated, and implementation of the project with mitigation incorporated would not result in disproportionately high and adverse health or environmental impacts to minority and low-income populations.

4.3.4.2 Mitigation Measures

The following measures will address potential impacts related to hazards and hazardous materials during project operations. As the Lead Agency for the PEIR and the Tentative CAO, the San Diego Water Board will be responsible for verifying implementation of these measures. The San Diego Water Board may choose to employ and designate a regulatory contractor to perform the field verification, or this work may be conducted by San Diego Water Board staff.

Mitigation Measure 4.3.1: **Secondary Containment.** As an operational control element, the contractor shall ensure, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) will verify, that all oil and fuel is housed in a secondary containment structure to ensure that spilled or leaked oil or fuel will be prevented from entering the water column.

Mitigation Measure 4.3.2: **Dredging Management Plan.** The contractor shall ensure that a Dredging Management Plan (DMP) containing Standard Operating Procedures (SOPs) for the project is developed prior to the initiation of dredging and implemented for the duration of the dredging activity. The DMP will include the following measures to prevent release of hazardous materials during construction activities:

- Personnel involved with dredging and handling the dredged material will be given training on their specific task areas, including:
    - Potential hazards resulting from accidental oil and/or fuel spills;

  - Proper dredging equipment operation; and
  - Proper silt curtain deployment techniques.

- All equipment will be inspected by the dredge contractor and equipment operators before starting the shift. These inspections are intended to identify typical wear or faulty parts.
- Required instrumentation to avoid spillage of dredging material will be identified for each piece of equipment used during dredging operations.
- Personnel will be required to visually monitor for oil or fuel spills during construction activities.
- In the event that a sheen or spill is observed, the equipment will be immediately shut down and the source of the spill identified and contained. Additionally, the spill will be reported to the applicable agencies presented in the DMP.
- All personnel associated with dredging activities will be trained as to where oil/fuel spill kits are located, how to deploy the oil-absorbent pads, and proper disposal guidelines. The dredging barge shall have a full complement of oil/fuel spill kits on board to allow for quick and timely implementation of spill containment.
- The use of oil booms will be deployed surrounding the dredging activities. In the event that a spill occurs, the oil and/or fuel will be contained within the oil boom boundary. The silt curtains may also act as an oil boom, provided absorbent material is deployed during a spill.
- Shallow areas along the haul route will be mapped and provided to the dredge operator for review. These areas will be avoided to the extent possible to prevent propeller wash resuspension of sediment.
- Load-controlled barge movement, line attachment, and horsepower requirements of tugs and support boats at the project site will be specified to avoid resuspension of sediment.
- Barge load limits and loading procedures will be identified, and the appropriate draft level will be marked on the materials barge hull.

Implementation of the DMP will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.3.3: **Contingency Plan.** The contractor shall ensure that a Contingency Plan has been developed prior to the initiation of dredging and implemented for the duration of the dredging activity to address equipment and operational failures that could occur during dredging operations. The Contingency Plan will include the following measures to prevent release of hazardous materials during construction activities:

- Actions to implement in the event of equipment failure, repair, or silt curtain breach. These include:
  - Communication to project personnel;
  - Proper signage and/or barriers alerting others of potentially unsafe conditions;
  - Specification for repair work to be conducted on land and not over water;
  - Identification of proper spill containment equipment (e.g., spill kit);
  - A plan identifying availability of other equipment or subcontracting options;
  - Emergency procedures to follow in the event of a silt curtain breach;
  - Incident reporting and review procedure to evaluate the causes of an accidental silt curtain breach and steps to avoid further breaches; and
  - Response procedures in the event of barge overfill.

Implementation of the Contingency Plan will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.3.4: **Health and Safety Plan.** The contractor shall ensure that a Health and Safety Plan (H&S Plan) has been developed prior to the initiation of dredging and implemented for the duration of the dredging activity to protect workers from exposure to contaminated sediment. The H&S Plan will include the following requirements at a minimum:

- Training for operators to prevent spillage of sediment on the bridges during dredging activities
- Training for operators in decontamination and waste containment procedures
- Identification of appropriate Personal Protection Equipment (PPE) for all activities, including sediment removal, management, and disposal
- Certification of personnel under safety regulations such as Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120
- Documentation that requires that health and safety procedures have been implemented

Implementation of the H&S Plan will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.3.5: **Communication Plan.** The contractor shall ensure that a Communication Plan and operational guidelines are developed between the Port of San Diego and/or the Harbor Master and all vessel operators prior to the initiation of dredging to ensure the safe movement of project vessels from the dredge to the unloading area. Features of the Communication Plan will include at a minimum:

- Identification of vessel speed limitations (wake/no wake); and
- Notification to project personnel using air horns as necessary.

Implementation of the Communication Plan for the duration of the dredging activity will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.3.6: **Sediment Management Plan.** The contractor shall implement Best Management Practices (BMPs) and follow Standard Operating Procedures (SOPs) during sediment unloading, transport, drying/dewatering, and disposal operations for the

duration of the dredging activity. At a minimum, these BMPs/SOPs will include:

- The speed of the crane's swing arm shall be limited;
- Placement of a spillage plate to prevent any dropped sediment from impacting the water column;
- Conveyance of sediment on the spillage plate to a collection sump;
- Utilization of power washing to clean sediment from equipment, such as the spill plate, into the collection sump, if present;
- Contractor identification of haul truck load limits on first load each day;
- Driver training and enforcement of safe driving procedures;
- Only liquid drying agents will be utilized to avoid airborne release of these materials;
- Implementation of a dust control and monitoring plan during sediment staging;
- The stockpile liner will be protected from excavator penetration by a visual indicator such as sand, or by physical barriers such as railroad rails or K-rails;
- Decanted water from sediment and any storm water in the staging area will be managed by sloping the staging area to a common sump or pond (containment cell) or pumped to a series of tanks. The containment device(s) will be designed to meet a performance standard of "no discharge" so that storm water runoff cannot enter the bay or adjacent areas and to ensure that storm water surrounding areas cannot penetrate the containment area. The containment device(s) will be inspected daily during sediment staging. Prior to discharge, the liquid will be tested to evaluate whether it meets discharge criteria for the San Diego Publically Owned Treatment Works (POTW) or if treatment is required prior to discharge;
- Sediment loading for transport off site will be conducted in a contained area, and haul trucks will be power washed prior to exit to prevent sediment from being discharged to the bay or surrounding area; and

- All hazardous materials (liquid, sediment, or chemicals used during the project) will be handled, transported, and disposed of at the proper disposal facility in accordance with state regulations.

Implementation of these BMPs/SOPs will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.3.7: **Hazardous Materials Transportation Plan.** Prior to the initiation of dredging, the contractor shall prepare and implement a Hazardous Materials Transportation Plan for the duration of the dredging activity that specifies the following procedures at a minimum:

- Sediment containment procedures
- Emergency notification procedures

The Hazardous Materials Transportation Plan will be subject to review by, and its implementation will be verified by, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.3.8: **Traffic Control Plan.** The contractor shall prepare a Traffic Control Plan that will be developed prior to the initiation of dredging and implemented for off-site transport of the sediment, and will include, but not be limited to, the following information:

- Planned haul truck routes
- Haul truck escorts, if required
- In case of accidental spillage, emergency vehicle access and sediment containment and removal procedures

The Traffic Control Plan will be subject to approval by the City of San Diego and/or the National City Traffic Engineer, and implementation for the duration of the dredging activity will be verified by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

4.3.5 Cumulative Impacts

The hazards and hazardous materials cumulative study area considered for cumulative impacts consisted of: (1) the area that could be affected by proposed project activities; and (2) the areas affected by other projects whose activities could directly or indirectly affect the presence or fate of hazards or hazardous materials on site. Although there are no other contaminated sediment dredging projects currently scheduled for implementation in San Diego Bay, the San Diego Water Board anticipates that regularly scheduled maintenance dredging projects may occur in the bay over the next several years.

San Diego Water Board maintenance and environmental dredging records for the 11-year period from 1994 to 2005 show an average of approximately 245,000 cy of material dredged from the bay, with yearly ranges from 0 to 763,000 cy. While the dredge volume proposed for this project (143,000 cy) represents a significant dredge volume, the overall impacts related to dredging projects in San Diego Bay are expected to be within these historical ranges.

Although no specific environmental dredging projects have been identified, the San Diego Water Board expects that several dredging projects may be initiated within the next 10 years. Based on the conservative assumption that two similar-sized dredging projects occur during the dredging operations at the project site, the potential cumulative impacts related to hazards and hazardous materials may be significant. If dredging and dewatering areas are located adjacent to each other, the dredge schedules should be staggered to control the amount of material being handled, dewatered, and transported to reduce the potential for accidents or incidents related to high traffic or working in close proximity. This requirement is specified in Mitigation Measure 4.2.14 in the Hydrology and Water Quality section of this PEIR. If dredging and dewatering activities with distinct haul routes are ongoing in separate parts of San Diego Bay, there is little potential for cumulative significant impacts related to hazards and hazardous materials.

The proposed project involves the removal of contaminated sediment from San Diego Bay in accordance with Tentative CAO No. R9-2011-0001. The project is a regulatory action to remove hazardous materials from the environment. Once the project is completed and the sediment is disposed of at an approved disposal facility, no hazardous materials would be generated at the project site.

The potential for the project to release hazardous materials to off-site areas would be controlled through implementation of a series of BMPs and SOPs that are specified step by step in Mitigation Measures 4.3.1 through 4.3.8. Sediment management is subject to specific requirements through the dredging, unloading, transport, and disposal process, and is highly regulated.

With implementation of Mitigation Measures 4.3.1 through 4.3.8 for project impacts and Mitigation Measure 4.2.14 for cumulative impacts, the impacts of the proposed project in

combination with reasonably foreseeable projects in the surrounding areas would not contribute to significant cumulative impacts to people or the environment due to exposure to hazardous materials.

4.3.6 Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures, there are no significant unavoidable adverse hazards or hazardous materials impacts associated with the proposed project.

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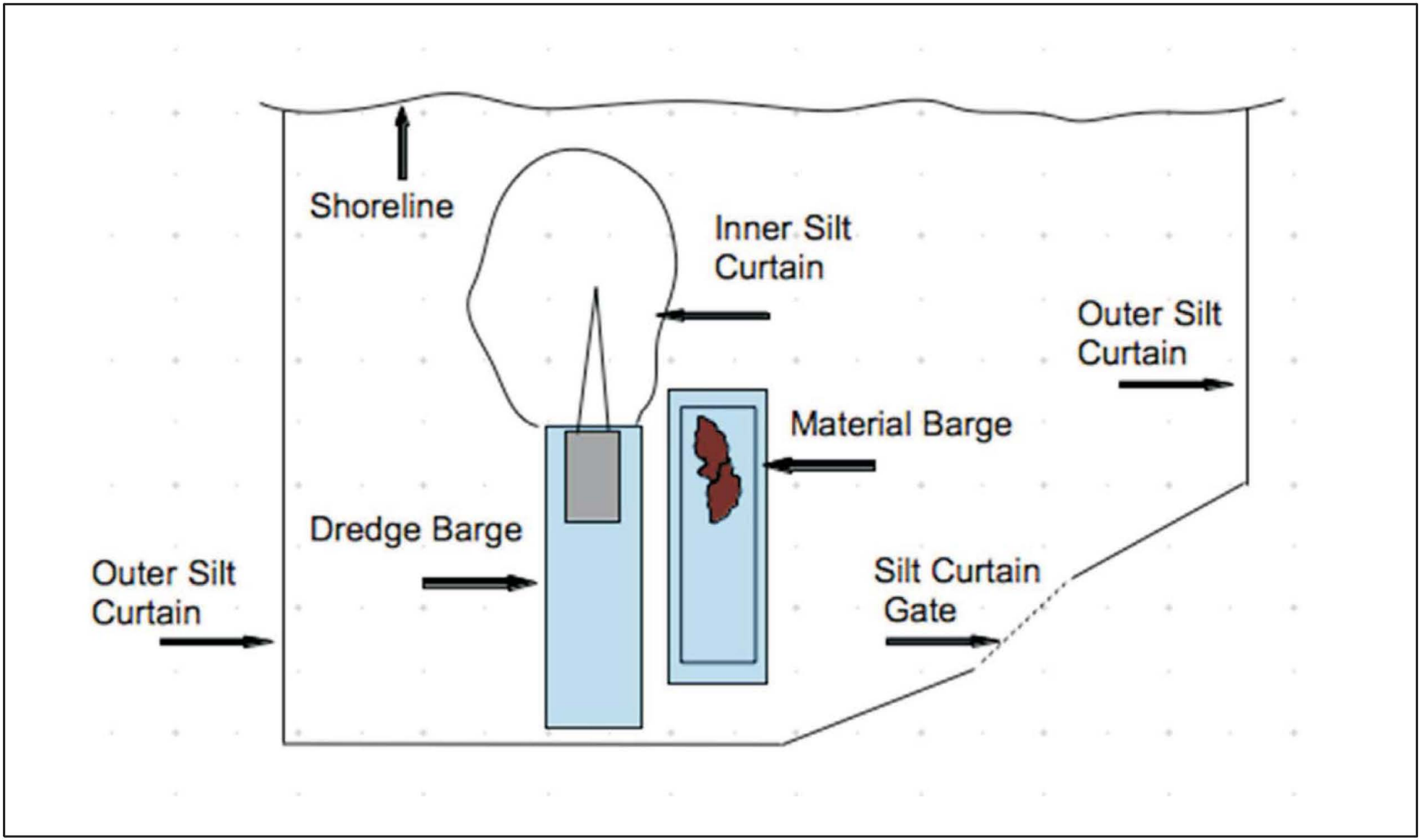

LSA

FIGURE 4.3-1

Shipyard Sediment Remediation Project

Double Silt Curtain Containment

SOURCE: Geosyntec

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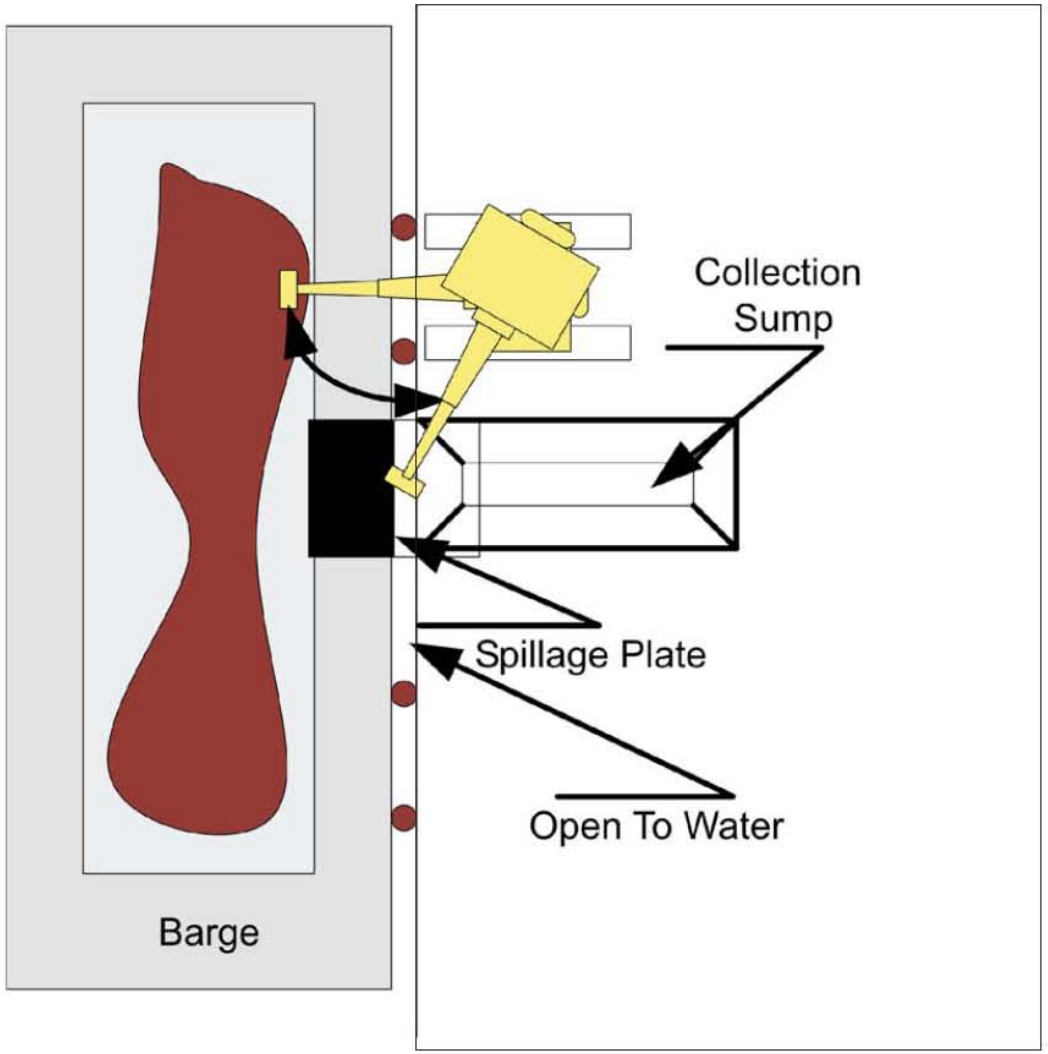

LSA

FIGURE 4.3-2

Shipyard Sediment Remediation Project

Collection Sump

SOURCE: Geosyntec

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4.4 NOISE

This section of the Draft Program Environmental Impact Report (PEIR) evaluates the potential impacts related to noise from implementation of the proposed project. The analysis in this section is based on the *Noise Impact Analysis (*LSA Associates, Inc., May 2011). This report is included in Appendix E.

4.4.1 Existing Setting

4.4.1.1 Noise Definition

Noise impacts can be described in three categories. The first is audible impact, which refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 decibels (dB) or greater, because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant and adverse impacts of proposed projects.

4.4.1.2 Characteristics of Sound

Sound is increasing to such disagreeable levels in our environment that it can threaten our quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect our ability to hear. Pitch is the number of complete vibrations or cycles per second of a wave that result in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which, in turn, produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Sound intensity is measured through the A-weighted scale (dBA) to correct for the relative frequency response of the human ear. An A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. For example, 10 dB are 10 times more intense than 1 dB, 20 dB are 100 times more intense, and 30 dB are 1,000 times more intense. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel system

of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

4.4.1.3 Measurement of Sound

Sound levels are generated from a source, and their decibel levels decrease as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. However, the predominant rating scales for human communities in the State of California are the equivalent continuous sound level (L_{eq}) and Community Noise Equivalent Level (CNEL) based on A-weighted decibels. L_{eq} is the total sound energy of time-varying noise over a sample period. CNEL is the time-varying noise over a 24-hour period, with a weighting factor of 5 dBA applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a weighting factor of 10 dBA from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). The noise adjustments are added to the noise events occurring during the more sensitive hours. A day-night average noise level (L_{dn}) is similar to CNEL but without the adjustment for nighttime noise events. CNEL and L_{dn} are normally exchangeable and within 1 dB of each other. Other noise-rating scales of importance when assessing annoyance factors include the maximum noise level (L_{max}) and percentile noise exceedance levels (L_N). L_{max} is the highest exponential time-averaged sound level that occurs during a stated time period. It reflects peak operating conditions and addresses the annoying aspects of intermittent noise. L_N is the noise level that is exceeded "N" percent of the time during a specified time period. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level; half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the lowest noise level experienced during a monitoring period. It is normally referred to as the background noise level.

4.4.1.4 Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in less-developed areas. The *Noise Impact Analysis* (Appendix E, Table B, Common Sound Levels and their Noise Sources) provides a more detailed description of noise levels and their effects on humans.

4.4.1.5 Vibration

Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hangings on walls, or a low-frequency rumbling noise. The rumble noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration and PPV is used to characterize potential for damage to structures. Ground vibrations from construction activities, including those within water bodies such as pile driving for pile installation, do not often reach the levels that can damage structures, but they can achieve the audible and feelable ranges in buildings very close to the site. Ground-borne vibration from construction sources is usually localized to areas within approximately 100 feet from the vibration source.

4.4.1.6 Sensitive Land Uses in Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples of sensitive land uses include residential areas, educational facilities, parks, hospitals, childcare facilities, and senior housing. The sensitive land uses within the vicinity of the proposed project include Cesar Chavez Park (located adjacent to Staging Areas 1 and 2), the single-family residences along Main Street (approximately 300 feet from Staging Area 4), and the residential land uses adjacent to the haul route along 28th Street. Sensitive land uses in National City include residences and a park located in the vicinity of, but not along, the haul route. (See Figure 4.4-1.) The Sweetwater Marsh and South San Diego Bay Units of the

San Diego National Wildlife Refuge are located south of Staging Area 5 and are addressed in Section 4.5, Biological Resources, of this PEIR.

4.4.1.7 Existing Noise Environment

The primary existing noise sources in the project area are transportation facilities. Traffic on Interstate 5 (I-5), Harbor Drive, and other local arterials along with operations within the shipyard and train yard are the dominant sources contributing to area ambient noise levels.

4.4.2 Regulatory Setting

The applicable noise standards governing the project site are the criteria in the City of San Diego Progress Guide and General Plan (which are summarized in Significance Determination Thresholds, California Environmental Quality Act (CEQA), City of San Diego Development Services Department, Land Development Review Division, Environmental Analysis Section, 2007) and Section 12.10 of the City of National City's Municipal Code.

4.4.2.1 City of San Diego Progress Guide and General Plan, CEQA Significance Determination Thresholds

The City has adopted the following applicable standards:

- Temporary construction noise that exceeds 75 dBA $L_{eq}(1)$ at a sensitive receptor would be considered significant. Construction noise levels measured at or beyond the property lines of any property zoned residential shall not exceed an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with the exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator in conformance with San Diego Municipal Code Section 59.5.0404.

4.4.2.2 City of National City Noise Control Ordinance

Section 12.10.160 states that it is unlawful to operate or to allow or cause the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on weekends or holidays. In addition, noise from construction or demolition activities shall not exceed the maximum noise levels listed in Table 4.4-1.

Table 4.4-1: Construction Noise Thresholds (dBA L_{max})

	Type I Areas: Residential	Type II Areas: Semi-Residential/Commercial
Mobile Equipment	75	85
Stationary Equipment	60	70

Source: City of National City, Municipal Code, 2011.
dBA = A-weighted decibels
L_{max} = maximum noise level

4.4.3 Thresholds of Significance

Threshold 4.4.1: Result in 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?

Threshold 4.4.2: Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Threshold 4.4.3: Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Threshold 4.4.4: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Threshold 4.4.5: Lie within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Threshold 4.4.6: Lie in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

4.4.4 Impacts and Mitigation

The proposed project involves the dredge, treatment, and removal of sediment. No long-term changes to existing landside facilities or their operation would occur as a result of the proposed project. Therefore, the Initial Study (IS) prepared for this project determined that the proposed project would not have a significant impact with respect to the following: exposure to excessive ground-borne vibration, substantial permanent increase in ambient noise, airport land use plan area, public or private airports, and related noise levels. Therefore, these issues (Thresholds 4.4.2, 4.4.3, 4.4.5, and 4.4.6) are not addressed further in this PEIR.

The *Noise Impact Analysis* (Appendix E) is incorporated by reference into this PEIR. Evaluation of noise impacts associated with the proposed project includes the following:

- Determine the short-term construction noise impacts on on-site and off-site noise-sensitive uses with industry-recognized noise emission levels for construction equipment.
- Determine the required mitigation measures to reduce short-term and long-term noise impacts from all sources.

4.4.4.1 Less Than Significant Impacts

Expose Sensitive Receptors to Noise Levels that Exceed Local Noise Standards. Local agencies with jurisdiction over the project include the City of San Diego and National City. As described above, each of these local jurisdictions has published standards for noise levels. Noise standards vary based on the surrounding land uses, particularly whether the land uses are considered sensitive receptors. The *Noise Impact Analysis* (Appendix E) analyzes impacts based on duration (i.e., short-term impacts versus long-term impacts) and proximity to sensitive land uses in the vicinity of project activities.

Short–term, construction-related noise impacts have the potential to cause significant adverse impacts. As described in the *Noise Impact Analysis*, two types of short-term, construction-related impacts are anticipated to occur. The first is the increase in traffic flow on local streets, which is associated with the transport of workers, equipment, and materials to and from the project site. Traffic on streets adjacent to the project site is the dominant source contributing to ambient noise levels in the project vicinity. Noise from motor vehicles is generated by engine vibrations, the interaction between the tires and the road, and the exhaust system. Sensitive land uses located along the proposed and "mitigation alternative" haul truck routes, such as residences and parks, would be exposed to noise levels of up to 88 dBA L_{max} at a distance of 50 feet. The increase in traffic flow on roads due to construction traffic is expected to be small, representing a 1 percent increase in the total existing traffic on Harbor Boulevard, for example. Therefore, the associated increase in long-term traffic noise will not be perceptible, and impacts are less than significant for uses located along or near the haul routes.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating within the project area. The proposed project will be divided into multiple phases throughout project area. The activities that will occur during these phases will include:

- Debris and pile removal;
- Dredging of the project site;
- Landside staging area – pad construction;

- Landside staging area – operations; and
- Covering of sediment near structures.

The following construction equipment will be required to complete the above tasks:

- Bulldozers
- Loaders
- Tug Boats
- Excavators
- Trucks
- Cranes
- Paving equipment
- Rollers
- Rock slingers
- Barges

Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.4-2 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Table 4.4-2: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jackhammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-End Loaders	77–90	86
Hydraulic Backhoe	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86

Source: Bolt, Beranek & Newman, *Noise Control for Buildings and Manufacturing Plants* (1987).
dBA = A-weighted decibels
ft-lb/blow = foot-pounds per blow

The following sensitive land uses are located within the vicinity of the proposed construction activities.

- **Cesar Chavez Park:** Cesar Chavez Park is located approximately 75 feet from the edge of Staging Area 2 and 250 feet from the edge of Staging Area 1. Mobile equipment within Staging Area 2 would operate from 75 to 800 feet from Cesar Chavez Park. Standard construction equipment that would generate up to 86 dBA L_{max} at a distance of 50 feet would be required within the staging areas. Multiple construction equipment operating at the same time typically generate noise levels of up to 91 dBA L_{max} at 50 feet. The noise levels from activities within Staging Area 2 would range from 67 to 87 dBA L_{max}. Mobile equipment within Staging Area 1 would operate from 250 to 2,000 feet from Cesar Chavez Park. The noise levels from activities within Staging Area 1 would range from 59 to 77 dBA L_{max}. The City of San Diego's construction noise thresholds are based on the average noise level (L_{eq}) over a 12-hour period. The maximum noise levels listed above would only occur for short durations when the activities are in close proximity to the sensitive land uses. Due to the size of the staging areas and the intermittent nature of the on-site activities, the 12-hour average noise level is not expected to exceed the City's 75 dBA L_{eq} threshold.

  Other land uses in the vicinity of Staging Areas 1 and 2 include Perkins Elementary School and the Barrio Logan College Institute, which are located approximately 530 and 265 feet from Staging Area 1, respectively, and 1,050 feet and 845 feet from Staging Area 2, respectively. The construction noise levels within these areas would range from 65 to 77 dBA L_{max}. These uses would experience short-term noise levels similar to those experienced in Cesar Chavez Park.

- **Residential Uses:** The closest residences in the City of San Diego to the staging areas are the single-family residences along Main Street. These residences are located at a distance of approximately 300 feet from Staging Area 4. Mobile equipment within Staging Area 4 would operate within 300 to 800 feet of these residences. Noise levels from construction activities within Staging Area 4 would range from 67 to 75 dBA L_{max}. As the maximum noise level is projected to be 75 dBA or lower, the 12-hour average noise level at these residences would not exceed the City's 75 dBA L_{eq} construction noise threshold.

  The closest residences in the City of National City to the staging areas are the single-family residences along Cleveland Avenue. These residences are located at a distance of approximately 750 feet from Staging Area 5. Mobile equipment within Staging Area 5 would operate within 750 to 3,500 feet of these residences. Noise levels from construction activities within Staging Area 5 would range from 54 to 67 dBA L_{max}. Therefore, construction noise levels at these residences would not exceed the City of National City's 75 dBA L_{max} construction noise threshold.

- **Other Uses in National City:** National City identifies residential uses as sensitive to construction noise. There are no residential uses in close proximity to Staging Area 5 or

to the haul route for Staging Area 5. Pepper Park is located approximately 50 feet from the potential staging area and from the haul route. Noise from staging area activities at that distance could be in the range of 91 dBA L_{max}. As noted above, the increase in noise associated with truck traffic is not expected to be significant. This summary is provided for informational purposes only, as parks are not identified as sensitive receptors in the City Noise ordinance. Other land uses near or adjacent to the haul route for Staging Area 5 is the Pier 32 Marina. These uses may also be exposed to staging area and truck noise similar to Pepper Park, but are not considered to be sensitive receptors for noise in the City's Noise Ordinance. The Sweetwater Marsh National Wildlife Refuge is located south of the Sweetwater Channel. Please see Section 4.5, Biological Resources, for more information regarding project impacts to the wildlife refuge.

Conclusions. San Diego's construction noise thresholds are based on the average noise level (L_{eq}) over a 12-hour period. The maximum noise levels associated with project construction activities would only occur for short durations when the activities are in close proximity to the sensitive land uses. Due to the size of the staging areas and the intermittent nature of the on-site activities, the 12-hour average noise level is not expected to exceed the City's 75 dBA L_{eq} threshold.

Construction noise levels at residences and other sensitive land uses within the jurisdiction of National City would not exceed the City of National City's 75 dBA L_{max} construction noise threshold. Therefore, the proposed project would result in less than significant impacts with regard to exceeding local noise standards (Threshold 4.4.1).

Noise impacts are essentially the same for both schedule scenarios described in Chapter 3.0 because the noise thresholds are based on daily and 12-hour averages.

Increase Temporary Noise above Existing Ambient Levels. As described above under the response to Threshold 4.4.1, short-term construction noise may increase ambient noise levels in the project vicinity temporarily. However, they would not exceed established noise standards in the City of San Diego or the City of National City.

If any one of Staging Areas 1 through 4 were selected, there is the potential for noise impacts from increased truck and vehicle trips on the portion of the haul route along Boston Avenue. If either Staging Area 1 or 2 were to be selected, there is the potential for impacts to Cesar Chavez Park from the operation of equipment and dewatering/treatment activities. If Staging Area 4 were to be selected, there is the potential for residential uses located along Main Street in the City of San Diego to be affected by noise from equipment operation and dewatering/treatment activities. If Staging Area 5 were to be selected, there is the potential for residential uses along Cleveland Avenue, Pepper Park, and Pier 32 Marina to be impacted by noise from equipment operation and dewatering/treatment activities. All of these

potential impacts were analyzed and found to be less than significant. Therefore, the proposed project would result in a temporary increase in noise above existing ambient levels; however, this impact is less than significant because the increased noise levels would not exceed local standards (Threshold 4.4.4).

The potential for noise from equipment operation and dewatering/treatment activities to affect the Sweetwater Marsh National Wildlife Refuge is addressed in Section 4.5, Biological Resources.

Environmental Justice. Although there is a high percentage of low-income and minority populations in the project study area, the proposed project noise effects are less than significant and therefore will not substantially or disproportionately affect low-income and minority populations in the vicinity of the project site.

4.4.4.2 Mitigation Measures

Although construction noise impacts are not expected to exceed the construction noise thresholds established by either the City of San Diego or City of National City, the following precautionary measures are proposed to ensure that construction noise impacts remain at a less than significant level. Mitigation Measures 4.4.1 through 4.4.3 would reduce noise impacts and help to ensure that the proposed remediation project construction noise impacts remain at a less than significant level, including potential noise impacts to those uses in which minority and/or low-income populations may participate, including use of local schools and parks.

Mitigation Measure 4.4.1: The contractor shall ensure, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) and City of San Diego Noise Control Officer shall verify that treatment and haul activity, except that performed within the active shipyards' work areas, in the City of San Diego is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in section 21.04 of the San Diego Municipal Code, with the exception of Columbus Day and Washington's Birthday, or on Sundays, that would create disturbing, excessive, or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator in conformance with San Diego Municipal Code section 59.5.0404.

Mitigation Measure 4.4.2: The contractor shall ensure, and the National City Noise Control Officer and California Regional Water Quality Control

Board, San Diego Region (San Diego Water Board) shall verify, that treatment and haul activity, except that performed within the active shipyards' work areas, in National City is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on weekends or holidays as specified in section 12.10.160 of the City of National City Municipal Code.

Mitigation Measure 4.4.3: The contractor shall implement, and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify, the following for the duration of project implementation (dredging, treatment, and loading) in order to reduce potential construction noise impacts on nearby sensitive receptors:

1. All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers consistent with manufacturers' standards.
2. All stationary construction equipment shall be placed so that emitted noise is directed away from sensitive receptors nearest the project site.
3. All equipment staging shall be located to create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site.

4.4.5 Cumulative Impacts

The evaluation of potential cumulative impacts of this project with other projects in and around San Diego Bay is the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Noise from construction of the proposed project and other nearby projects would be localized. Therefore, the cumulative study area for construction noise is the area immediately surrounding or between each particular project site.

Although there are no other sediment remediation dredging projects currently scheduled for implementation in San Diego Bay, the San Diego Water Board anticipates that several other dredging projects may occur in San Diego Bay over the next 10 years. However, dredging activity in the bay is located farther from the sensitive land uses identified in this PEIR section than the dewatering/treatment activity in the staging areas. Therefore, dredging projects in San Diego Bay would not contribute to a cumulative noise impact to the identified sensitive land uses.

The San Diego Unified Port website identifies a few key projects to be implemented over several years. These projects are listed in Section 4.1, Transportation and Circulation, of this PEIR and include:

- North Embarcadero Visionary Plan (NEVP)
- San Diego Convention Center
- Chula Vista Bayfront Master Plan
- Ruocco Park
- Lane Field
- Old Police Headquarters (OPH) and Park Project
- Commercial Fisheries Revitalization Plan

With the exception of the Chula Vista Bayfront Master Plan, these Port projects are located north of the shipyards. The Commercial Fisheries Revitalization Plan pertains to Driscoll's Wharf Marina in Point Loma and Tuna Harbor near downtown. The Chula Vista Bayfront Master Plan is located approximately 1.5 miles south of Staging Area 5. Noise effects from construction activities from these projects would not impact the sensitive receptors identified for the proposed project because of their distance from the proposed project area. Therefore, the project's contribution to cumulative noise effects is considered to be less than significant.

4.4.6 Significant Unavoidable Adverse Impacts

The project and cumulative noise impacts are less than significant. Implementation of precautionary Mitigation Measures 4.4.1 through 4.4.3, described above, would further reduce potential project and cumulative noise impacts. Therefore, there are no significant unavoidable adverse impacts of the proposed project related to noise.

LSA

LEGEND

Potential Sediment Staging Areas
Shipyard Sediment Project Site
Proposed Haul Routes

Land Uses

Single-Family Residential
Multi-Family Residential
1 - Cesar Chavez Park
2 - Pepper Tree Park
3 - Pier 32 Marina
4 - Sweetwater Marsh National Wildlife Refuge

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FEET

SOURCE: Bing Maps (c.2008), SanGIS (2008)

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Figure 4.4-1

Shipyard Sediment Remediation Project

Nearby Land Uses

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FIGURES

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4.5 BIOLOGICAL RESOURCES

This section provides a discussion of the existing marine biological resources in the project site and in the areas surrounding San Diego Bay, and an analysis of potential impacts from implementation of the proposed project. This section also addresses the proposed impacts to marine biological resources with consideration of local, state, and federal regulations and policies; provides recommended mitigation measures pursuant to the California Environmental Quality Act (CEQA); and discusses resource agency permits and anticipated consultation requirements of the resource agencies.

The marine biological resources analysis in this section is based on the project-specific *Marine Biological Resources Assessment Technical Report, Shipyard Sediment Site* (Geosyntec, May 2011), which is included as Appendix F of this Program Environmental Impact Report (PEIR). This section also relies substantially on the comprehensive information presented in the San Diego Bay Integrated Natural Resources Management Plan (INRMP) prepared by the Department of the Navy and the San Diego Unified Port District (Port District) in 2000, as well as the preliminary draft update prepared in 2007.

4.5.1 Existing Setting

4.5.1.1 San Diego Bay

The San Diego Bay is a natural, nearly enclosed embayment that makes an exceptional harbor because of its deep entrance and protected conditions. San Diego Bay is unusual among river-dominated estuaries because of the minimal freshwater input and high evaporation rate, which can result in seasonal hypersaline conditions. The bay occurs along a curve in the southwestern California coastline that extends from Point Conception to just south of the Mexican border, an area within a bend in the Southern California coastline referred to as the Southern California Bight. This ecological region is very productive and diverse, occurring in the northern extent of the range of many tropical species and the southern extent of many temperate species, in an area associated with very complex Pacific Ocean underwater topography, with cool and warm water ocean currents as well as intertidal habitat (which is naturally scarce in Southern California).

The study area for the Shipyard Sediment Remediation Project (referred to as the Shipyard Sediment Site in the Draft Technical Report [DTR] for Tentative Cleanup and Abatement Order [CAO] No. R9-2011-0001, September 15, 2010) is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west. The sediment removal site (also referred to as the Proposed Remedial Footprint in the DTR for the Tentative CAO) comprises approximately 15.2 acres that are subject to dredging and 2.3 acres that are subject to clean sand cover, primarily under piers.

Tides in San Diego Bay are classified as mixed diurnal/semi-diurnal, with the semi-diurnal component dominant. Generally, the tides in San Diego Bay consist of two low and two high tides per day on an approximately 2-week, spring-neap tidal cycle that is associated with the phases of the moon. Tides do not follow a 24-hour cycle, so some days experience only three of the four tides within the calendar day. San Diego Bay is protected from large ocean waves as a result of its narrow entrance and geographical setting. Wave production within the bay is generally driven by local winds. Conditions at the project site are relatively quiescent, and are not subject to routine or significant wind, wave, or current-driven sediment disturbance events.

The water quality objectives and beneficial uses designated in the *Water Quality Control Plan for the San Diego Basin* (Basin Plan)[1] are discussed in detail in Section 4.2 of this PEIR. The designated beneficial uses that relate to biological resources include Commercial and Sport Fishing (COMM); Preservation of Biological Habitats of Special Significance (BIOL); Estuarine Habitat (EST); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); Marine Habitat (MAR), Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Shellfish Harvesting (SHELL). The long-term beneficial uses for the Pacific Ocean related to biological resources include COMM, BIOL, WILD, RARE, MAR, Aquaculture (AQUA), MIGR, SPWN, and SHELL. San Diego Bay is the largest marine bay and estuary in Southern California and provides important spawning and nursery habitat for marine fish and invertebrates.

As discussed further in Section 4.2 of this PEIR, San Diego Bay is impaired due to excessive concentrations of polychlorinated biphenyls (PCBs). A total of 172 acres of San Diego Bay are designated as contamination hot spots that contain toxic sediments and degraded benthic communities due to both point and non-point sources. The San Diego Bay shoreline between Sampson Street and 28th Street, which is within the project area, is impaired for copper, mercury, polycyclic aromatic hydrocarbons (PAHs), PCBs, and zinc. These contaminants have the potential to adversely affect biological resources.

4.5.1.2 Project Site

The principal structural components within the project site include the concrete bulkheads, piers, and dry dock facilities associated with the two shipyard facilities. The entire extent of the project site shoreline is artificially stabilized, consisting of a vertical sheet pile bulkhead and a seawall. Bathymetry at the site varies substantially due to the presence of shipways, dry docks, and berths, and ranges from -2 feet mean lower low water (MLLW) along the bulkheads to -70 feet MLLW at the BAE Systems dry dock sump area (Figure 4.5-1).

[1] California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). 2007. Water Quality Control Plan for the San Diego Basin (9). September 8, 1994, as amended.

The five potential staging areas for the project consist primarily of leasehold lands and associated parking areas in the immediate vicinity of the project site, and are described further in Chapter 3.0 of this PEIR. The staging areas would be used for the dewatering, solidifying, and drying of the dredged marine sediments; usable areas within each potential staging area are comprised of open, paved areas. All staging areas are located in designated industrial areas.

4.5.1.3 Terrestrial Habitats

The staging areas under consideration for the project are located in paved, developed areas within industrial areas. The five staging areas under consideration are discussed below, but are also described further in Chapter 3.0 and depicted on Figures 3-2 through 3-7.

- **Staging Area 1: 10th Avenue Marine Terminal and Adjacent Parking.** This site includes approximately 49.66 potentially usable acres located within paved areas between and surrounding marine terminal buildings and structures and in an adjacent parking lot. Landscaped vegetation is minimal within the usable areas; however, there is a landscaped area associated with Cesar Chavez Park at the corner of Crosby Road and Cesar E. Chavez Parkway, approximately 500 feet from the edge of the nearest usable area. The landscaped areas in the park may provide suitable nesting sites for urban-adapted avian species and limited habitat for other wildlife. Due to the developed condition and the level of disturbance associated with human activities on Staging Area 1, the overall value of the area for wildlife is low. A large portion of the site abuts San Diego Bay and may provide perching areas for foraging birds. Other urban-adapted wildlife may also utilize the site, particularly those adapted to foraging in or above the bay. Structures and rooftops may also provide nesting, perching, or roosting areas for avian species and bats.
- **Staging Area 2: Commercial Berthing Pier and Parking Lots Adjacent to Coronado Bridge.** This site includes approximately 11.66 potentially usable acres located on paved areas surrounding structures associated with the commercial berthing pier area and in parking lots adjacent to Coronado Bridge. Landscaped vegetation is minimal, and is primarily associated with narrow strips in parking lots or on the perimeter of buildings. The components of this site are located on either side of (and immediately adjacent to) Cesar Chavez Park, which is described above. As with Staging Area 1, the developed condition and the level of disturbance associated with human activities within this staging area limit the value of the site for wildlife use, although urban-adapted avian species may forage, roost, or nest within vegetated areas. A relatively small portion of the usable areas abuts San Diego Bay and may provide perching areas for foraging birds. Other urban-adapted wildlife may also utilize the site, particularly those adapted to foraging in or above the bay. Structures and rooftops on or adjacent to this area may also provide nesting, perching, or roosting areas for avian species and bats.
- **Staging Area 3: SDG&E Leasehold/BAE Systems Leasehold/BAE Systems and NASSCO Parking Lots.** This area includes approximately 7.27 potentially usable acres

of paved areas interspersed throughout industrial structures and parking lots, as well as parking areas along East Belt Street. Landscaped vegetation is minimal, and is primarily associated with narrow strips in parking lots or on the perimeter of buildings. Some sparsely vegetated and unpaved areas occur on the east side of East Belt Street along the railroad track adjacent to the staging area. As with the other staging areas, the developed condition and the level of disturbance associated with human activities within this staging area limit the value of the site for wildlife use, although urban-adapted avian species may forage, roost, or nest within vegetated areas. A portion of the site abuts San Diego Bay and may provide perching areas for foraging birds. Other urban-adapted wildlife may also utilize the site, particularly those adapted to foraging in or above the bay. Structures and rooftops may also provide nesting, perching, or roosting areas for avian species and bats.

- **Staging Area 4: NASSCO/NASSCO Parking and Parking Lot North of Harbor Drive.** This area includes approximately 3.85 potentially usable acres located within paved parking lots along either side of East Harbor Drive. Landscaped vegetation is minimal and is primarily associated with narrow strips in parking lots, but includes several large trees. Additionally, several large trees are located in nearby landscaped strips associated with buildings along East Harbor Drive. Some unpaved areas and slopes occur between the lots on the east side of East Harbor Drive and support sparse vegetation. As with the other staging areas, the developed condition and the level of disturbance associated with human activities within this staging area limit the value of the site for wildlife use, although urban-adapted avian species may forage, roost, or nest within vegetated areas. This area does not abut San Diego Bay; however, urban-adapted species may utilize the site. Structures (including several utility poles in the area) and rooftops may also provide nesting, perching, or roosting areas for avian species and bats.
- **Staging Area 5: 24th Street Marine Terminal and Adjacent Parking Lots.** This area includes approximately 145.31 potentially usable acres located on paved areas surrounding structures associated with the 24th Street Marine Terminal and within adjacent parking areas. Landscaped vegetation within this site is minimal and consists primarily of linear areas along street edges (Bay Marina Drive, West 28th Street, West 32nd Street, Quay Avenue, and Marina Way). Pepper Park has open grassy areas and several large trees, and is located adjacent to the potential staging area along the Sweetwater Channel, which abuts the area to the south. A large portion of the site abuts San Diego Bay and may provide perching areas for foraging birds. As with the other staging areas, the developed condition and the level of disturbance associated with human activities within this staging area limit the value of the site for wildlife use, although urban-adapted avian species may forage, roost, or nest within vegetated areas. Other urban-adapted wildlife may also utilize the site, particularly those adapted to foraging in or above the bay. Structures and rooftops may also provide nesting, perching, or roosting areas for avian species and bats.

  Staging Area 5 is adjacent to Paradise Marsh, which provides saltwater marsh and maritime succulent scrub habitat, is located east of Marina Way, and is part of the

Sweetwater Marsh Unit of the San Diego Bay National Wildlife Refuge (NWR) (Figure 4.5-2). This area is known to support a wide variety of plants and wildlife, including federally- and/or state-listed as threatened or endangered wildlife species such as California least tern (*Sterna antillarum browni*), light-footed clapper rail (*Rallus longirostris levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), salt marsh bird's beak (*Cordylanthus maritimus maritimus*), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).[1] Some of these species are likely to fly over the site as they move between roosting/nesting areas to foraging areas in San Diego Bay and at sea. A managed California least tern nesting area (known as "D Street Fill") is located across Sweetwater Channel from the site (Figure 4.5-2); this area also provides nesting habitat for other birds. The San Diego Bay NWR is discussed further under the Regulatory Setting section.

4.5.1.4 Marine Habitats

The San Diego Bay INRMP provides a description of several habitat types that occur within the San Diego Bay. The unvegetated shallow soft bottom and vegetated shallow subtidal habitats, both of which are shallow subtidal habitats, and the artificial hard substrate habitat occur within the open water areas of the NASSCO and BAE Systems leaseholds. Species that inhabit the pelagic (open water) independently of the underlying marine habitat are discussed further in Section 4.5.1.5, Pelagic Zone/Open Water. Bathymetry at the site varies substantially due to the presence of shipways, dry docks, and berths, and ranges from -2 feet MLLW along the bulkheads to -70 feet MLLW at the BAE Systems dry dock sump area.

In the marine biology report (Appendix F of this PEIR), the habitats are described as subtidal soft bottom habitat (which comprises both the Unvegetated Shallow Soft Bottom and Vegetated Shallow Subtidal habitats), open water (referring to the water column above the ocean floor), and the vertical bulkhead walls and dock structures (discussed below as artificial hard substrate). Continually submerged, shallow habitats extend from the low tide zone, which is from approximately -2 feet to -12 feet MLLW. The abundance of fish and birds is much higher in shallow waters than at other depths in the San Diego Bay. Shallow waters within the bay also support many thousands of resident and migratory birds for foraging and resting.

Unvegetated Shallow Soft Bottom. Within San Diego Bay, the Unvegetated Shallow Soft Bottom habitat is composed primarily of soft bottoms of unconsolidated sediment, which tend to be unstable and shift in response to tides, wind, waves, currents, or human/biological activity. Benthic organisms occur in this habitat that serve as a prey base for fish and birds

[1] United States Department of the Interior, Fish and Wildlife Service. 2006. San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, Final Comprehensive Conservation Plan and Environmental Impact Statement, August.

and provide processes that return essential chemicals and organic matter to the water column. Animals and plants lack attachment sites in this environment. As a result, they burrow into the substrate to prevent being washed away and are referred to as "benthic infauna." The presence of extensive masses or mats of living algal material interspersed with areas of exposed sediment forms an important structural component, providing cover or refuge for many species of motile invertebrates and fishes, as well as serving as a potential food source. Unvegetated shallows support species assemblages of benthic invertebrates and demersal (living close to the seafloor) fishes that are distinct from vegetated shallows. California halibut (*Paralichthys californicus*), diamond turbot, round stingray (*Urobattus halleri*), and several species of gobies appear to depend primarily on invertebrates of unvegetated shallows as their food source.

In the marine biology report, the Unvegetated Shallow Soft Bottom habitat areas are described as bare mud (subset of the Subtidal Soft Bottom habitat). Bare mud occurs throughout most of the project site, with depths up to -70 feet MLLW in the BAE Systems dry dock sump. Few invertebrates were observed on the mud although evidence of burrowing invertebrates, possibly tube-dwelling anemones, arthropods (e.g., ghost shrimp [*Callianassa*]), or bivalves, was observed. Even though only round stingray were observed, other fish species including barred and spotted sand bass (*Paralabrax nebulifer* and *P. maculatofasciatus*), California halibut (*Paralichthys californicus),* and midshipman (*Porichthys myriaster*) are likely to use this habitat.

Vegetated Shallow Subtidal. Within the San Diego Bay, the Vegetated Shallow Subtidal habitat consists of eelgrass beds that typically extend from 0 to -12 feet MLLW. Green sea turtles (*Chelonia mydas*), fish, and invertebrates use these beds to escape from predators, as a food source, and as a nursery. Eelgrass habitats are among the most productive in the ocean, and this habitat has suffered substantial losses and impacts due to the concentration of human activities in sheltered waters. Eelgrass has an extremely rapid growth rate, high net productivity, and high level of biomass, and supports widely diverse assemblages of invertebrate and fish species. This habitat increases the available substrate surface and provides effective refugia (including egg attachment surfaces and sheltered locations for juvenile fish to hide and feed), supporting epifauna living on the eelgrass blades, epifauna living on the surface of the sediment, infauna living in the sediment of the bed, and invertebrates and fishes living in or above the canopy. Eelgrass beds are productive, help stabilize the unconsolidated substrate, keep the water clearer, cut down wave action and currents, decrease turbulence, and increase fine sediment deposition. The algae and invertebrates on the leaf blades are consumed by larval and juvenile fish. Faunal invertebrates are supported by detrital leaves, rhizomes, and nutrients found within the sediments.

Eelgrass (*Zostera marina*) beds comprise the Vegetated Shallow Subtidal habitat within the project site. The marine biology report (Appendix F) summarizes the results of previous

eelgrass surveys in various portions of the project site. A total of 10 eelgrass beds have been reported within the BAE Systems leasehold and 13 eelgrass beds have been reported within the NASSCO leasehold (see Figure 4.5-1). These areas are discussed further in Section 4.5.1.6, Essential Fish Habitat/Habitats of Particular Concern.

Artificial Hard Substrate. Within San Diego Bay, the Artificial Hard Substrate habitat is made up of hard structures such as pier pilings, bulkheads, and rock riprap used to protect developed sites from erosion. Invertebrates and seaweeds, juvenile and predator fishes, and waterbirds, which roost on floating structures, all make use of this habitat. All of the man-made structures within the bay support a wealth of invertebrates and seaweeds, including many of the exotic species that have invaded San Diego Bay. These include native and nonnative lobster, crabs, worms, mussels, barnacles, echinoderms, sponges, sea anemones, and tunicates. Hardened shorelines may provide elevated roosting sites for bay waterbirds to conserve energy and avoid harsh weather conditions. Floating structures in shallow water that are relatively undisturbed by human activity are used for roosting and foraging by pelicans, cormorants, and gulls. Habitat value of the armored shoreline likely varies according to material, construction, relief, and maintenance activities. In the case of the proposed project, this artificial hard substrate consists of the vertical bulkhead walls and dock structures associated with the shipyards. Within the BAE Systems portion of the project site, barnacles (*Chthamalus* spp., *Balanus* sp.) were the most common species observed on the bulkhead walls (approximately -2 feet MLLW) during a survey in 2010. Limited algal growth occurred on the piles (e.g., *Ulva* spp., foliose red algae), and invertebrates in this community include colonial tunicates (e.g., *Botryllus* sp.), oysters (*Ostrea lurida*), sponges (*Leucilla nuttingi*), mussels (*Mytilus* sp.), feather duster worms (*Sabillidae*), colonial ascidians (*Botrylloides* sp.), solitary tunicates (e.g., *Ciona* sp., *Styela plicata*), bryozoans (e.g., *Eurystomella* sp.), and the nonnative bryozoan *Zoobotryon verticillatum*. Sargo (*Anisotremus davidsoni*) and barred sand bass (*Paralabrax nebulifer*) were observed in the vicinity of the piles. A large white seabass (*Atractoscion nobilis*) was also observed patrolling the area.

4.5.1.5 Pelagic Zone/Open Water

The pelagic zone is generally composed of a continuous water column. For the purpose of this discussion, the definition of the pelagic zone is the water column and resident organisms that have little interaction with the benthos. Pelagic organisms, such as schooling fish and drifting plankton, generally remain in the water column.

Plankton. Marine plankton consists of a diverse collection of plants and animals, all drifting with the current in the water column. Phytoplankton, using carbon dioxide and light energy to construct cell material, represent the beginning of the pelagic food chain. Zooplankton graze on phytoplankton and represent another significant component of the pelagic food

chain. In addition to the phytoplankton and zooplankton, which spend their entire life as plankton, the larvae or juvenile forms of numerous other organisms spend time as plankton.

Fishes. A great number of fish inhabit the pelagic zone. The northern anchovy (*Engraulis mordax*) is one of the most abundant fish in the California current as well as in San Diego Bay. Some pelagic fish (e.g., northern anchovy and slough anchovy, which are usually considered open water schooling fish) are frequently found in San Diego Bay that are associated with the benthic zone.

The types of fishes which commonly occur in protected bays of Southern California such as San Diego Bay are a combination of species that are associated with unconsolidated bottom and aquatic bed habitats, rocky shore habitat (pilings, docks, cement bulkheads and jetties), as well as open water species. Based on the results of two surveys summarized in the marine biology report (Appendix F), the most numerous species observed in San Diego Bay near the project site were slough anchovy (*Anchoa delicatissima*), topsmelt (*Atherinops affinis*), and shiner perch (*Cymatogaster aggregate*). In terms of biomass, round stingrays, spotted sand bass (*Paralabrax maculatofasciatus*), topsmelt, slough anchovy, California butterfly ray (*Gymnura marmorata*), and yellowfin croaker (*Umbrina roncador*) represented the greatest biomass for fishes.

Fish in San Diego Bay taken by commercial or recreational fishing and that could be expected to appear at the project site or potential staging area waterfront locations are listed in Table 4.5-1. Those species that support a commercial fishery are indicated with an asterisk. Commercial fishing no longer occurs in San Diego Bay; the last commercial fishery, supported by striped mullet (*Mugil cephalus*) in south San Diego Bay, ended in 1998. However, seven species inhabiting San Diego Bay support commercial fisheries elsewhere in Southern California waters. The most important of these is the California halibut. The northern anchovy is taken commercially for use as live bait. In addition, the Pacific sardine (*Sardinops sagax caeruleus*) is taken as part of this catch. Fish caught for live bait are brought and held in bait receivers located in north San Diego Bay, where they are sold to commercial and recreational fisherman. A much larger group of species are caught within San Diego Bay by recreational fisherman and by those who fish for subsistence. At least 58 species are involved in the recreational catch and are listed in Table 4.5-1.

Table 4.5-1: Fish Species of San Diego Bay Taken by Recreational and Commercial Fishermen

Scientific Name	Common Name
Osteichthyes	**Bony Fish**
Atherinops affinis	topsmelt
Atherinopsis californiensis	jacksmelt
Leuresthes tenuis	California grunion
Hippoglossina stomata	bigmouth sole
Xystreurys liolepis	fantail sole
Caranx caballus	green jack
Caranx hippos	crevalle jack
Trachurus symmetricus	jack mackerel
Chanos chanos	milkfish
Clupea pallasi	Pacific herring
*Sardinops sagax caeruleus**	Pacific sardine
Scorpaena guttata	sculpin
Scorpaenichthys marmoratus	cabezon
Amphistichus argenteus	barred surfperch
Cymatogaster aggregata	shiner surfperch
Damalichthys vacca	pile surfperch
Embiotoca jacksoni	black surfperch
Hyperprosopon argenteum	walleye surfperch
Micrometrus minimus	dwarf surfperch
Phanerodon furcatus	white surfperch
Rhacochilus toxotes	rubberlip surfperch
*Engraulis mordax**	northern anchovy
Girella nigricans	opaleye
*Mugil cephalus**	striped mullet
Hypsopsetta guttulata	diamond turbot
*Paralichthys californicus**	California halibut
Platichthys stellatus	starry flounder
*Parophrys vetulus**	English sole
Pleuronichthys coenosus	C-O turbot
Pleuronichthys ritteri	spotted turbot
Pleuronichthys verticalis	hornyhead turbot
Cheilotrema saturnum	black croaker
*Atractoscion nobilis**	white seabass
Genyonemus lineatus	white croaker
Menticirrhus undulatus	California corbina
Roncador stearnsii	spotfin croaker
Seriphus politus	queenfish
Umbrina roncador	yellowfin croaker
Sarda chiliensis	Pacific bonito
Scomber japonicas	Pacific mackerel
Scomberomorus sierra	sierra
Medialuna californiensis	halfmoon
Morone saxatilis	striped bass
*Paralabrax clathratus**	kelp bass
Paralabrax maculatofasciatus	spotted sand bass

Table 4.5-1: Fish Species of San Diego Bay Taken by Recreational and Commercial Fishermen

Scientific Name	Common Name
Paralabrax nebulifer	barred sand bass
Sphyraena argentea	California barracuda
Albula vulpes	bonefish
Cynoscion parvipinnis	shortfin corvine
Chondrichthyes	**Sharks and Rays**
Carcharhinus brachyurus	narrowtooth shark
Galeorhinus zyopterus	soupfin shark
Mustelus californicus	gray smoothhound
Mustelus henlei	brown smoothhound
Mustelus lunulatus	sicklefin smoothhound
Prionace glauca	blue shark
Triakis semifasciata	leopard shark
Sphyrna zygaena	smooth hammerhead shark
Squalus acanthias	spiny dogfish

* = Species of commercial importance in Southern California waters

4.5.1.6 Essential Fish Habitat/Habitats of Particular Concern

As part of the Fishery Management Plans (FMPs), the National Marine Fisheries Service (NMFS) is required to identify Habitat Areas of Particular Concern (HAPCs) that are subsets of Essential Fish Habitat (EFH),[1] which are rare, are particularly susceptible to human-induced degradation, are especially ecologically important habitats, or are located in an environmentally stressed area. The Magnuson-Stevens Fishery Conservation and Management Act (MSA), discussed further in the Section 4.5.2, includes provisions for the identity and protection of important marine habitat and anadromous fish. The eelgrass habitat within the project site leasehold is considered to be EFH, as it provides essential habitat for juvenile fish species to grow to maturity, or offers protection for managed species.

The eelgrass habitat is the only designated HAPC for the project site. Eelgrass is a marine plant historically found in shallow (+1 to -8 feet MLLW), soft bottom bays and estuaries ranging from Baja to Alaska. It plays an important ecological role by providing nursery habitat for commercial/recreational fish (predation refuge and food source), trapping sediment and clarifying water, providing food for birds, fish, and invertebrates, and supporting epiphytic organisms that are fed on by other species. The eelgrass habitat in San Diego Bay makes up nearly 20 percent of all eelgrass habitat in California, and comprises approximately 50 percent of all eelgrass habitat in Southern California. Most eelgrass beds in San Diego Bay are in the southern portion of the bay, as this area has retained much of its historic shallow bathymetry. This habitat type is thought to be expanding due to conservation and restoration efforts.

[1] 50 CFR 600.815(a)(8)

Eelgrass (*Z. marina*) is identified as an HAPC for EFH groundfish species, and the habitat is an important component of the San Diego Bay food web. Fishes and invertebrates, such as juvenile lobster, use eelgrass beds to escape from predators, as a food source, and as a nursery. Fish documented to use eelgrass beds include topsmelt, guitarfish, diamond turbot, bat ray, dwarf perch, arrow goby, jack mackerel, pipefish, Pacific sardine, striped mullet, and walleye surfperch. The plants provide surfaces for egg attachment and sheltered locations for juveniles to hide and feed. Fish from these beds are consumed by fish-eating birds, including the endangered California least tern. Waterfowl, especially surf scoter (*Melanitta perspicillata*), scaup (*Aythya* spp.), and brant (*Branta bernicla*) are present in high numbers in late fall and winter in eelgrass beds.

The distribution and density of eelgrass beds are influenced by many factors including available light, water clarity, and nutrient concentration. Temperature, salinity, currents, and the nature of the substrate also serve as other controlling factors for the distribution and abundance of eelgrass. For eelgrass in San Diego Bay, the primary limiting factors are likely available light (including turbid water and shading from permanent structures) and vessel traffic.

An eelgrass survey was performed in the BAE Systems area in 2010. The survey found 0.84 acre of eelgrass within the survey limits at the BAE Systems facility (Figure 4.5-1). Of the mapped eelgrass, a total of 0.14 acre of eelgrass was mapped in the project survey area in multiple small patches interspersed between piers, bulkheads, and dredged basins, and 0.70 acre of eelgrass was mapped within the reference survey area. The existing eelgrass beds are located within highly confined regions of the shipyard that are generally inaccessible to large vessels.

4.5.1.7 Fishery Management Plan Species

Managed fish species that have been identified by the NMFS and have been documented within San Diego Bay include a variety of fin fish, flat fish, rock fish, and squid. While some of these species are associated with hard bottom substrates, the project site and potential staging areas may include areas that could be considered EFH by either the Coastal Pelagics FMP[1] or the Pacific Groundfish FMP.[2] FMPs are discussed in more detail in Section 4.5.2.

[1] Pacific Fishery Management Council. 1998. The Coastal Pelagic Species Fishery Management Plan.

[2] Pacific Fishery Management Council. 2008. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery, as Amended through Amendment 19.

Potential species of concern that may occur in San Diego Bay include six that are managed by the NMFS under the Coastal Pelagic Species FMP (Table 4.5-2). Four of the six fish managed under the Coastal Pelagic Species FMP are known to occur in San Diego Bay. The northern anchovy (*Engraulis mordax*) and Pacific sardine (*Sardinops saga*) are the most abundant, while the Pacific mackerel (*Scomber japonicas*) and jack mackerel (*Trachurus symmetricus*) are the other two coastal pelagics of potential concern in the project area. Two species managed in the Pacific Coast Groundfish FMP have been identified in San Diego Bay: California scorpionfish (*Scorpaena gutatta*) and English sole (*Parophrys vetulus*).

Table 4.5-2: NMFS Managed Fish Species Recorded in San Diego Bay

Common Name	Scientific Name
Coastal Pelagics FMP	
Northern anchovy	*Engraulis mordax*
Pacific sardine	*Sardinops sagax*
Pacific mackerel	*Scomber japonicus*
Jack mackerel	*Trachurus symmetricus*
Pacific Groundfish FMP	
California scorpionfish	*Scorpaena gutatta*
English sole	*Parophrys vetulus*

FMP = Fishery Management Plan
NMFS = National Marine Fisheries Service

4.5.1.8 Special-Status Species

Some species within San Diego Bay have been designated with a special status under either state or federal laws or regulations. Regulations are discussed in more detail in Section 4.5.2. This section includes brief descriptions of special-status species that exist within the San Diego Bay.

The California Natural Diversity Database (CNDDB) is a database of recorded species occurrences that is maintained by the California Department of Fish and Game (CDFG) to track species of interest. A search of this database was conducted in 2011 for the *Point Loma* and *National City, California* United States Geological Survey (USGS) 7.5-minute topographic quadrangles to identify special-status species that have been documented at the project site and potential staging areas. No fish species listed as threatened or endangered have been recorded in San Diego Bay in the CNDDB. However, the CNDDB only records freshwater, anadromous (fish that inhabit fresh and salt water during different life stages), and euryhaline (fish that can adapt to various levels of salinity) species, and therefore does not include records of most fish species that are restricted to ocean waters. Other documents that were reviewed for species occurrence information include the following:

- San Diego Bay NWR Comprehensive Conservation Plan and Environmental Impact Statement (EIS), August 2006

- South Coast Marine Protected Areas Project Final Environmental Impact Report (EIR), December 2010
- CDFG's California Wildlife Habitats Relationships System, http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx, accessed May 11, 2011
- United States Fish and Wildlife Service (U.S. FWS) Environmental Conservation Online System (ECOS), http://ecos.fws.gov/, accessed May 11, 2011
- NMFS, Office of Protected Resources, Species Information, http://www.nmfs.noaa.gov/pr/species, accessed May 11, 2011
- Coastal Pelagic Species Fishery Management Plan, 1998 (as amended)
- Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery, 2008
- San Diego County Bird Atlas, Philip Unitt, 2004
- California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California; Studies of Western Birds No. 1; W.D. Shuford and T. Gardali, editors, 2008

Special-status species including birds, fish, marine mammals, and marine reptiles that may occur or are likely to occur at the project site and potential staging areas are discussed below. Special-status plants are not discussed in this report because the landside portions of the project site are in a highly industrial area and are mostly paved, and because plant species in adjacent areas are not particularly susceptible to indirect project-impacts such as noise and increased human activity. No rare plants are known to occur at the project site or potential staging areas; however, rare plants do occur in the Sweetwater Marsh Unit of the San Diego Bay NWR.

The terms Not Expected, Low, Moderate, High, and Present (which are also described in more detail further below) are used in Table 4.5-3 to describe the potential of special-status wildlife species and species of interest to occur on the project site and in the potential staging areas. Table 4.5-3 also discusses species that occur within the San Diego Bay NWR that have the potential to be affected by project activities (e.g., special-status species that may nest in habitat near the proposed staging area or may forage in or near the site during breeding season). While several bat species have the potential to occur, as mentioned in Table 4.5-3, the proposed project dredging/clean sand cover application activities and landside activities are not anticipated to adversely affect any bat roosting habitat or disrupt nocturnal foraging activities.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
		Fish		
Onchorynchus mykiss irideus **steelhead trout** Southern California (from Malibu Creek to the Mexican border) Distinct Population Segment (DPS)	US: FE CA: CSC FMP: PCS* MSCP: N	An anadromous sea-going rainbow trout that lives approximately 2 to 4 years of its life (variable) in the open ocean prior to returning to its natal stream. Dependent on small streams with gravel beds to complete spawning cycle. Must have protective cover and adequate food source. With exception to a small population in San Mateo Creek in northern San Diego County, appears to have been completely extirpated from nearly all systems in the southern portion of the range of the DPS.	Year-round	**Not Expected.** Nearest known occurrence of this species is in San Mateo Creek, well north of the project site in northern San Diego County.
Eucyclogobius newberryi **tidewater goby**	US: FE CA: CSC FMP: – MSCP: NC	Found in brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches. Prefers sandy bottoms, near emergent vegetation beds; breed in open areas and winter over in vegetation. Young consume small crustaceans, mollusks, and insect larvae.	Year-round	**Not Expected.** Habitat conducive to tidewater gobies, such as shallow and brackish water, is absent from the project site and potential staging areas. Furthermore, the project site is not within the known range of this species. Therefore, the tidewater goby is not expected to occur at these sites.
Paralichthys californicus **California halibut**	US: – CA: – FMP: – MSCP: NC Included as a species of interest for the project because of its high potential to occur, commercial value, and possible interest to resource agencies	California halibut feed almost exclusively upon anchovies and similar small fishes. Males mature at 2 or 3 years of age, but females do not mature until 4 or 5. Young-of-the-Year fish (YOTY) prefer shallow waters; juveniles prefer deeper channel bottoms. Uses inshore waters of bays, harbors, and estuaries as a nursery and foraging habitat. Juvenile to sub-adult halibut are known to occur in San Diego Bay.	Year-round; spawning April–July	**High.** Adult California halibut and juveniles are expected to occur at the project site and waterfront potential staging areas due to the deep water habitat. Additionally, YOTY California halibut are expected to occur in shallow, unvegetated nearshore areas at the project site and waterfront potential staging areas.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
		Reptiles		
Chelonia mydas **green sea turtle**	US: FE CA: SA MSCP: NC	A marine species, completely herbivorous; needs adequate supply of seagrasses and algae. Estimated number of green sea turtles using the bay ranges between 30 and 60. Only area on the western coast of the U.S. where species is known to congregate.	Year-round	**High (foraging only).** Habitat for green sea turtles within San Diego Bay is suitable for foraging but is not considered suitable for nesting. Foraging by green sea turtles is concentrated in eelgrass beds and to lesser extent invertebrate communities in South and South Central bay.
Birds				
Accipiter cooperii (nesting) **Cooper's hawk**	US: – CA: SA MSCP: C	Forages in a wide range of habitats, but primarily in forests and woodlands. These include natural areas as well as human-created habitats such as plantations and ornamental trees in urban landscapes. Usually nests in tall trees. Breeding Cooper's hawks are widespread over San Diego County's coastal slope wherever there are stands of trees.	Year-round; typically breeds March–August, but can be as early as January	**Moderate.** Potentially suitable habitat (trees in urban areas) occurs within and adjacent to potential staging areas. This species is known to breed in the vicinity of the project site and potential staging areas.
Athene cunicularia (burrow sites) **burrowing owl**	US: – CA: CSC MSCP: C	Open country in much of North and South America. Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. They avoid thick, tall vegetation, brush, and trees, but may occur in areas where brush or tree cover is less than 30 percent.	Year-round, circadian activity; hunts day or night; frequently at burrow entrance in daytime; breeds March–August	**Not Expected.** Suitable habitat for this species does not occur within the project site or potential staging areas. This species is known to occur in the area and has recently resumed nesting in the Sweetwater Marsh Unit of the San Diego Bay National Wildlife Refuge (NWR), just south of potential Staging Area 5.
Branta bernicla (wintering, staging) **brant**	US: – CA: CSC MSCP: NC	Locally common winter along the California coast. Found in large, shallow estuaries with eelgrass beds, and also in nearby marine waters. Fewer are found on smaller estuaries with sandy or muddy bottoms.	Winters locally generally from October–May	**High (wintering/foraging only).** This species is likely to forage in eelgrass beds in and near the project site and near potential staging areas. No suitable nesting habitat is present.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Calypte costae (nesting) **Costa's hummingbird**	US: – CA: SA MSCP: NC	Found primarily in deserts, arid brushy foothills, and chaparral in Southern California. Wanders widely.	February–September, rare in winter, nests April–July on the coast	**Moderate.** This species may forage and nest in landscaped areas within and near potential staging areas. This species is known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Charadrius alexandrinus nivosus (nesting) **western snowy plover**	US: FT (coastal population) CA: CSC MSCP: C	Sandy coastal beaches, lakes, alkaline playas. Scattered locations along coastal California and Channel Islands, inland at Salton Sea and at various alkaline lakes. Requires a sandy, gravelly or friable soil substrate for nesting.	Locally year-round, breeds April–August	**Not Expected.** Suitable habitat for this species does not occur within the project site or potential staging areas. This species has been known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Circus cyaneus (nesting) **northern harrier**	US: – CA: CSC MSCP: C	Marshy habitats, grassland and other open country; uncommon in open desert and brushlands. Nests on the ground in open (treeless) wetland and upland areas, including cultivated cropland and dry grassland. Nest usually constructed in tall, dense clumps of vegetation. Found in the Temperate Zone worldwide.	Year-round, breeds April–September	**Not Expected.** Suitable habitat for this species does not occur within the project site or potential staging areas. This species is known to occur in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Eremophila alpestris actia **California horned lark**	US: – CA: SA MSCP: NC	Open grasslands and fields, agricultural areas, open montane grasslands. This subspecies is resident from northern Baja California northward throughout non-desert areas to Humboldt County. Prefers bare ground such as plowed or fall-planted fields for nesting, but may also nest in marshy soil.	Year-round; breeds March–July	**Moderate.** Suitable habitat for this species does not occur within the project site or in most of the potential staging areas; however, this species is known to use unpaved areas surrounded by disturbance. This species is known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Falco peregrinus anatum (nesting) **American peregrine falcon**	US: – CA: CFP MSCP: C	Widespread, but scarce and local throughout North America. Wetlands near high cliffs; few known to nest in urban settings on tall buildings.	Year-round; breeds approx. February–June	**Moderate (foraging only).** Suitable habitat for this species does not occur within the project site; however, may forage along coastal areas within and adjacent to potential staging areas. This species is known to nest in San Diego Bay, including on Coronado Bridge. This species is known to occur in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Lanius ludovicianus (nesting) **loggerhead shrike**	US: – CA: CSC MSCP: NC	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Inhabits open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Found in open country in much of North America.	Year-round; breeds March–August	**Not Expected.** Suitable habitat for this species does not occur within the project site or potential staging areas. This species has been known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Pandion haliaetus (nesting) **osprey**	US: – CA: SA MSCP: NC	Eats mostly live fish caught in shallow water. Occurs along coasts and at inland water bodies throughout much of the Americas. In California, winters in many areas but breeds primarily in the northern part of the state. Has resumed nesting in Southern California since at least 1997.	Year-round; breeds approx. March–September	**High.** This species is likely to forage within the San Diego Bay, including the project site, and may perch or roost on structures or trees within potential staging areas. This species has been recorded nesting at the North Island Naval Air Station in recent years. This species is also known to occur in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Passerculus sandwichensis beldingi **Belding's savannah sparrow**	US: – CA: SE MSCP: C	Resident in salt marshes, with rare exception (e.g., Islas Todos Santos, Baja California), of Pacific Coast from Santa Barbara County to Baja California.	Year-round, breeds April–July	**Not Expected.** Suitable habitat for this species does not occur within the project site or potential staging areas. The California Natural Diversity Database (CNDDB) records this species in Paradise Marsh. This species is known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Pelecanus occidentalis (nesting colony & communal roosts) **California brown pelican**	US: – CA: SE/CFP MSCP: C	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size that afford immunity from attack by ground-dwelling predators.	Year-round, breeds March–August	**High (roosting or foraging only).** This species is likely to forage and/or roost in and near the project site and potential staging areas. No suitable nesting habitat is present.
Phalacrocorax auritus (nesting colony) **double-crested cormorant**	US: – CA: SA MSCP: NC	Primarily a fish-eating bird that requires lakes, rivers, reservoirs for foraging. Requires undisturbed nest sites beside water, on islands or mainland. Uses wide rock ledges on cliffs; rugged slopes; and live or dead trees, especially tall ones.	Year-round, usually breeds April–August	**High (roosting or foraging only).** This species is likely to forage and/or roost in and near the project site and potential staging areas. No suitable nesting habitat is present. This species is known to nest in suitable habitat within the southern portion of the San Diego Bay area.
Rallus longirostris levipes **light-footed clapper rail**	US: FE CA: SE/CFP MSCP: C	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation. Require dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on mollusks and crustaceans.	Year-round, vocalizes at night, dawn, and dusk, breeds March–July	**Not Expected.** Suitable habitat for this species does not occur within the project site or potential staging areas. CNDDB records this species in Paradise Marsh. This species is known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Rynchops niger (nesting colony) **black skimmer**	US: – CA: CSC MSCP: NC	Nests and breeds in coastal beach, sandbar, shell bank, island, salt marsh and locally on gravel rooftops; casual inland. Associates with terns, gulls, plovers.	Year-round diurnal activity, breeds May–October	**High (foraging only).** This species is likely to forage in and near the project site and potential staging areas. No suitable nesting habitat is present. This species is known to occur in the Sweetwater Marsh Unit of the San Diego Bay NWR just south of potential Staging Area 5, and to nest in the South San Diego Bay Unit.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Sterna nilotica (nesting colony) **gull-billed tern**	US: – CA: CSC MSCP: NC	Casual inland; nest and breeds in gravel, sand, or shell beaches, occasionally on grassy portions of islands and salt marshes. Forages over agricultural fields or marshes.	Year-round diurnal activity, breeds April–August	**High (foraging only).** This species is likely to forage in and near the project site and potential staging areas. No suitable nesting habitat is present. This species is known to occur in the Sweetwater Marsh Unit of the San Diego Bay NWR just south of potential Staging Area 5, and to nest in the South San Diego Bay Unit.
Sternula antillarum browni (nesting colony) **California least tern**	US: FE CA: SE/CFP MSCP: C	Nests along the coast from San Francisco Bay south to northern Baja California. Forages in shallow water. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.	Present in California April–October, breeds May–August	**High (foraging only).** This species is likely to forage in and near the project site and near potential staging areas. No suitable nesting habitat is present. This species is known to nest in the Sweetwater Marsh Unit of the San Diego Bay NWR, just south of potential Staging Area 5.
Thalasseus elegans (nesting colony) **elegant tern**	US: – CA: SA MSCP: C	Primarily feeds in shallow ocean waters beyond the turbulent breaker zone, but also may forage in protected bays and lagoons. Dives into water for fish, the primary prey. Congregates on beaches and tideflats when not feeding. Tends to roost high up on beaches. Post-breeders frequent seacoasts, mudflats, bays, estuaries, and lagoons Preferred habitats are inshore coastal waters, bays, estuaries, and harbors; rarely occurs far offshore, and never inland.	In California March–October, breeds approx. April–July	**High (foraging only).** This species is likely to forage in and near the project site and potential staging areas. No suitable nesting habitat is present. This species is known to occur in the Sweetwater Marsh Unit of the San Diego Bay NWR just south of potential Staging Area 5, and to nest in the South San Diego Bay Unit.
Mammals				
Tursiops truncates **bottlenose dolphin** Included as a species of interest for the project because of its high potential to occur	US: – CA: – MSCP: NC	Often found in shallow inland and coastal waters and live on a diet of shrimp, squid, eels, and small.	Year-round	**High (foraging).** Suitable foraging habitat is present within the San Diego Bay.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
and its protected status under the Marine Mammal Protection Act (MMPA)				
Phoca vitulina **harbor seal** Included as a species of interest for the project because of its high potential to occur and its protected status under the MMPA	US: – CA: – MSCP: NC	Inhabit shallow areas where sandbars, rocks and beaches are uncovered during low tides or are otherwise easily accessible. Harbor seals are opportunistic feeders, primarily consuming bottom dwelling and schooling prey.	Year-round, breeds generally February–June	**High (foraging).** Suitable foraging habitat is present within the San Diego Bay.
Zalophus californianus **California sea lion** Included as a species of interest for the project because of its high potential to occur and its protected status under the MMPA	US: – CA: – MSCP: NC	Prefer to breed on sandy beaches. Outside of the breeding season, they will often gather at marinas and wharves. Forage no more than 10 miles out to sea, will move inland or up coastal slopes at night or on cool days. Feed on a wide variety of seafood, mainly squid and fish, and sometimes clams; mostly around the edge of the continental shelf sea mounts, the open ocean and the ocean bottom.	Year-round, breeds from May–June	**High (foraging).** Suitable foraging habitat is present within the San Diego Bay.
Antrozous pallidus **pallid bat**	US: – CA: CSC MSCP: NC	Most common in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, rocky outcrops, tree hollows or crevices, mines and occasionally buildings, culverts, and bridges. Night roosts may be more open sites, such as porches and open buildings. Grasslands, shrublands, woodlands, and forest in western	Year-round, nocturnal, raises young starting in April	**Low.** CNDDB records one occurrence in Chula Vista in 1946. Habitat on the project site and in the potential staging areas is not highly suitable for foraging, though conceivably could roost in the area. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
		North America. Forages over open ground, usually 1.6 to 8 feet above ground level.		related activities and is not discussed further in this report.
Choeronycteris Mexicana **Mexican long-tongued bat**	US: – CA: CSC MSCP: NC	Occasionally found in San Diego County, which is on the periphery of their range. California records largely have been in urban habitat in San Diego. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	Year-round, nocturnal, raises young from approx. June–August	**Low.** CNDDB records roost sites at the San Diego Zoo and in Old Town. Suitable foraging resources (night-blooming succulents) limited to landscaped areas within or near potential staging areas. Potentially suitable roosting habitat (buildings) occurs within the potential staging areas. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Eumops perotis **western mastiff bat**	US: – CA: CSC MSCP: NC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, and tunnels, and travels widely when foraging.	Year-round, nocturnal, raises young mid-summer	**Moderate.** CNDDB records occurrences at Hotel Del Coronado, Point Loma (foraging), and Sweetwater County Park. Project site and potential staging areas do not appear suitable for roosting, may forage over the area. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Lasionycteris noctivagans **silver-haired bat**	US: – CA: SA MSCP: NC	Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water. Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas.	Crepuscular, raises young May–August	**Low.** CNDDB records two occurrences, one in Ocean Beach and one in San Diego. Project site and potential staging areas do not appear suitable for roosting, may forage over the area. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Lasiurus blossevillii **western red bat**	US: – CA: CSC MSCP: NC	Roosts in the foliage of trees and shrubs, commonly in edge habitats along streams or open fields, and sometimes in orchards or urban areas. Often associated with riparian habitats, particularly those containing sycamores and	Year-round, nocturnal, raises young May–August	**Moderate.** CNDDB records roosting and foraging bats at Cabrillo National Monument. Project site and potential staging areas do not appear suitable for roosting, may forage over the area.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
		cottonwoods.		Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Lasiurus cinereus **hoary bat**	US: – CA: SA MSCP: NC	Forages over a wide range of habitats, but prefers open habitats with access to trees, for roosting, and water. Ranges throughout most of California. Winters along the coast and in southern California, breeding inland and north of the winter range.	May be year-round, primarily nocturnal, raises young May–August	**Low.** CNDDB records one individual collected at San Diego Zoo. Project site and potential staging areas do not appear suitable for roosting, may forage over the area. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Lasiurus xanthinus **western yellow bat**	US: – CA: CSC MSCP: NC	Found in desert and riparian areas of the southwest U.S. Individuals roost in the dead fronds of palm trees, and have also been documented roosting in cottonwood trees.	Year-round, nocturnal, raises young approx. June–August	**Moderate.** CNDDB records this species as collected in Balboa Park and Spring Valley. Suitable roosting areas (untrimmed palm trees, cottonwood trees) are limited to landscaped areas within or near potential staging areas; may forage over the site. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Myotis yumanensis **Yuma myotis**	US: – CA: SA MSCP: NC	Optimal habitats are open forests and woodlands with sources of water over which to feed. Common and widespread in California. Uncommon in the Mojave and Colorado Desert regions, except for mountains. Ranging generally from sea level to 2,440 meters (8,000 feet). Roosts in buildings, mines, caves or crevices; occasionally in swallow nests and under bridges.	Primarily the warmer months, nocturnal, raises young approx. May–August	**High.** CNDDB records one occurrence in Sweetwater County Park. Potential staging areas appear to provide suitable roosting sites (buildings), may also forage over the project site. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.

Table 4.5-3: Special-Status Wildlife Species with Potential to Occur at or Near the Site

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Nyctinomops femorosaccus **pocketed free-tailed bat**	US: – CA: CSC MSCP: NC	Usually associated with cliffs, rock outcrops, or slopes. May roost in buildings (including roof tiles) or caves. Occurs from the southwestern United States to central Mexico.	Year-round, nocturnal, raises young June–August	**High.** CNDDB records the species in several locations, including a roost at Sweetwater Reservoir Dam. Potential staging areas appear to provide suitable roosting sites (buildings), may also forage over the project site. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Nyctinomops macrotis **big free-tailed bat**	US: – CA: CSC MSCP: NC	Inhabits rugged, rocky canyon country in southwestern United States. Found from northern South America and the Caribbean Islands northward to the western United States. In the southwestern United States, populations appear to be scattered. This species is a seasonal migrant, and a powerful flyer. Roosts mainly in the crevices of rocks in cliff situations, some documentation of roosting in buildings, caves, and tree cavities.	Probably year-round, raises young June–September	**Moderate.** CNDDB records the species at Balboa Park, Spring Valley, and Cabrillo National Monument. Project site and potential staging areas do not appear suitable for roosting, may forage over the area. Due to the nocturnal habits of this species, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.
Corynorhinus townsendii **Townsend's big-eared bat**	US: – CA: CSC MSCP: NC	Requires caves, mines, tunnels, buildings, or other similar structures for roosting. May use buildings or bridges for roosting. Often uses separate sites for night, day, hibernation, or maternity roosts. Ranges from southwestern Canada through the western United States to southern Mexico. Roost sites are highly sensitive to disturbance.	Year-round, nocturnal, bats at hibernacula October–April	**Moderate.** Although CNDDB does not record this species within the area, suitable roosting areas (buildings and bridges) occur within the area. Roosting structures are limited to areas within or near potential staging areas; may forage over the site. Due to the nocturnal habits of this species, and because the project would not entail the use of buildings within potential staging areas, it is not anticipated to be adversely affected by project-related activities and is not discussed further in this report.

See table footnotes on following page.

US: Federal Classifications

END Taxa listed as Endangered.
THR Taxa listed as Threatened.
P END Taxa proposed to be listed as Endangered.
P THR Taxa proposed to be listed as Threatened.
C Candidate for listing. Refers to taxa for which the United States Fish and Wildlife Service (U.S. FWS) has sufficient information to support a proposal to list as Endangered or Threatened; issuance of the proposal(s) is anticipated but precluded at this time.

CA: State Classifications

END Taxa state-listed as Endangered.
THR Taxa state-listed as Threatened.
RARE Taxa state-listed as Rare.
C END State candidate (Endangered).
C THR State candidate (Threatened).
CSC California Species of Special Concern. Refers to taxa with populations declining seriously or that are otherwise highly vulnerable to human developments.
SA Special Animal. Refers to taxon of concern to the CNDDB regardless of its legal or protection status.
SP Special Plant. Refers to taxon of concern to the CNDDB regardless of its legal or protection status.

FMP: Fisheries Management Plan Species

CPS Taxa managed in Coastal Pelagic Species FMP.
PCG Taxa managed in Pacific Coastal Groundfish FMP.
PCS Taxa managed in Pacific Coast Salmon FMP.
PCS* Taxa that may be managed in Pacific Coast Salmon FMP in the future.

MSCP: Multiple Species Conservation Program (Final MSCP Plan; City of San Diego and City of Chula Vista Subarea Plans)

C Species considered “covered” in MSCP.
NC Species not considered “covered” MSCP.

- **Not Expected:** Suitable habitats associated with the species are not present within the project site.
- **Low:** Existing populations are not known to occur within 1.0 mile (1.6 kilometer) of or in the project site, and any potential habitat within the project site is of marginal quality. This category is also assigned to bird species that migrate through the project site alignment, but are not present during nesting or breeding season.
- **Moderate:** The species is not known to occur within 1.0 mile (1.6 kilometer) of or in the project site, but suitable habitat areas are present or near the project site.
- **High:** The species is known to occur within 1.0 mile (1.6 kilometer) of the project site, and suitable habitat occurs within the project site.
- **Present:** The species is reported by natural resource agencies as present within the project site and suitable habitat was found to still exist within the project site during the field surveys, or the species was observed during the field surveys.

4.5.1.9 Invasive Species

Invasive species are the second-largest threat to rare, threatened, or endangered species nationwide, second only to habitat destruction. The introduction of exotic wildlife species, particularly benthic or epibenthic (living on the surface of the seafloor) marine species, represents a serious threat to the health of San Diego's coastal ecosystem. Exotic marine species are transported into San Diego Bay environment through various means, including on the exterior of ships, within ballast water that is discharged into the bay, attached through an intended introduced species (e.g., oysters for commercial harvesting), intentional introduction for commercial or sport fishery, and through release of unwanted organisms by aquarists or bait fishermen. Over 80 nonnative (exotic) species are known to occur within San Diego Bay; however, not all are invasive or are causing adverse effects. Nonnative species can have different types of impacts on native species, including replacement of a functionally similar native species through competition; inhibition of normal growth or increased mortality of the host and associated species; competition caused by extremely high population densities due to lack of natural controls; development as novel predators or prey; creation or alteration of substrate and habitat; hybridization with native species; and direct or indirect toxicity. Some introduced species may have no notable effects on native species.

Some of the exotic species found in San Diego Bay include fishes such as sailfin mollies (*Poecilia latipinna*) and yellowfin goby (*Acanthogobius flavimanus*), which are believed to compete with native species for food and habitat. Another exotic, invasive species is the Japanese mussel (*Musculista senhousia*), which forms dense mats on substrata that alters sediment properties and may displace native bivalves. The following sources were reviewed for information regarding invasive and exotic species in San Diego Bay:

- *San Diego Bay Integrated Natural Resources Management Plan*, Department of the Navy and Unified Port of San Diego (2000), and 2007 Preliminary Draft

- USGS *Nonindigenous Aquatic Species Database (NAS Database),* 2004, http://nas.er.usgs.gov, queried May 13, 2011
- *Comprehensive Conservation Plan and Environmental Impact Statement for Sweetwater Marsh and South San Diego Bay Units, San Diego National Wildlife Refuge,* U.S. FWS (2006)
- *Caulerpa Control Protocol (Version 4 - February 25, 2008),* NMFS/CDFG (2008)
- *California Aquatic Nonnative Organism Database (CANOD),* retrieved May 15, 2011, from: http://www.dfg.ca.gov/ospr/about/science/misp.html, records for San Diego Bay Station, CDFG Office of Spill Prevention and Response (2009)
- *California Aquatic Invasive Species Management Plan (CAISMP),* CDFG (2008)

Five species that are included in the CAISMP are reported by one or more sources as occurring within the San Diego Bay: yellowfin goby, Eurasian watermilfoil (*Myriophyllum spicatum*), Japanese seaweed (*Sargassum muticum*), naval shipworm (*Teredo navalis*), and California tunicate (*Botrylloides diegensis*). California tunicate is considered by some to be native to the area, and is an invasive on the east coast of the United States. The INRMP provides context for invasive species in the San Diego Bay, and discusses Japanese mussel, which can crowd out native clams and dominate marsh restoration sites but also provides habitat that can support greater species diversity and densities of native macrofauna; the isopod *Sphaeroma quoyanum*, which caused problems in the 1990s in the banks of the salt marsh in Paradise Creek, causing the overlying vegetation to slump and the creek to widen; and a variety of fouling organisms. Exotic tunicates, shipworms, gribbles, and hydroids are commonly found on or in pilings. The biological surveys summarized in the marine biology report (Appendix F of this PEIR) indicate that four nonnative species were documented within the BAE Systems and/or NASSCO areas: the mollusks *Musculista senhousia* and *Theora lubrica*, the polychaete *Pseudopolydora paucibranchiata*, and the bryozoan *Zoobotryon verticillatum*.

One species, *Caulerpa* (*Caulerpa taxifolia*), is discussed below in the context of applicable regulatory requirements, although the species is not known to occur within San Diego Bay at this time.

Caulerpa taxifolia (Caulerpa). In marine and estuarine habitats in Southern California, one main invasive species is a tropical seaweed (*Caulerpa taxifolia*). The invasive green alga was discovered in estuarine waters of Southern California east of Interstate 5 (I-5) in Agua Hedionda Lagoon in Carlsbad in early 2000.

This alga poses a substantial threat to marine ecosystems in Southern California, particularly to the extensive eelgrass meadows and other benthic environments that make coastal waters a rich and productive environment for fish and birds. The eelgrass beds and other coastal resources that could be directly impacted by an invasion of *Caulerpa* are part of a food web

that is critical to the survival of numerous native marine species, including the commercially and recreationally important species. This invasive alga essentially displaces the natural vegetation in areas where it becomes established and becomes the dominant plant life.

While outbreaks have been contained for *Caulerpa*, the State Water Resources Control Board (State Water Board), through the NMFS and the CDFG, requires that projects that have the potential to spread this species through dredging and bottom-disturbing activities conduct pre-construction surveys to determine if this species is present using standard agency-approved protocols conducted by NMFS/CDFG Certified Field Surveyors. *Caulerpa* can be spread through regeneration from small fragments broken off the main plant; as a result, activities that disrupt the benthic environment have the potential to spread the species.

In 2010, *Caulerpa* surveys were conducted within the BAE area. No *Caulerpa* algae were observed during the remote video surveys within the project area. *Caulerpa* surveys have been performed within the NASSCO leasehold in 2002–2004 and 2006. No *Caulerpa* algae were observed during any of the diver transect surveys within the project areas.

Based on previous surveys at the shipyards, no *Caulerpa* have been observed within the project site, which precludes the potential spread of this species during the dredging and/or clean sand covering activities. However, a *Caulerpa* algae survey will be conducted prior to construction activities to comply with permit applications for United States Army Corps of Engineers (ACOE), Section 404 of the Clean Water Act (CWA), and Section 10 of the Rivers and Harbors Act, and with the requirements of Section 305(b)(2) of the MSA. If this species is found, then the 2008 *Caulerpa* Control Protocol (or the most recent version available from NMFS) for the eradication of *Caulerpa* will be implemented to remove this species from the project area. The 2008 *Caulerpa* Control Protocol requires survey results to be submitted to the National Oceanographic and Atmospheric Administration (NOAA) and CDFG within 15 days of completion. This protocol also requires that the NOAA and CDFG be notified within 24 hours if *Caulerpa* is identified at a permitted project site. This species is not discussed further in this PEIR as no impacts are expected.

4.5.2 Regulatory Setting

The regulatory context for marine areas is very complex, with many agencies and regulations. Tables 4.5-4 through 4.5-6, which were adapted from the INRMP, provide an outline of applicable regulations and activities for each agency. Furthermore, there are a great many regulations pertaining to nonnative, invasive species. Table 4.5-7 provides an overview of these regulations, several of which are also mentioned in Tables 4.5-4 through 4.5-6.

Selected federal, state, and local regulations that are applicable to the proposed project are discussed in more detail below.

Table 4.5-4: Federal Agencies with Responsibilities for Natural Resources in San Diego Bay

Agencies and Applicable Laws	Authority and Activities
United States Army Corps of Engineers (ACOE)	
• Clean Water Act (CWA), Section 404 • Rivers and Harbors Act of 1899, Section 10 • Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, Section 103	• Responsible for issuing Section 404 permits for dredged or fill material into waters of the United States (up to higher high water line in tidal waters) and into wetlands in compliance with U.S. EPA regulations. • Regulates construction, excavation, and deposition in navigable waters (up to mean high water in tidal waters). • Regulates dumping and transport for dumping of material into United States waters. • Commenting or lead agency authority for environmental review of proposed projects.
United States Environmental Protection Agency (U.S. EPA)	
• CWA, as amended • National Environmental Policy Act (NEPA) • MPRSA of 1972	• Develops Section 404 regulations and may veto ACOE Section 404 permit. • Regulates waste disposal in coastal waters. • Administers (with National Oceanographic and Atmospheric Administration [NOAA]) the Coastal Nonpoint Pollution Control Program. • Administers National Estuary Program (NEP). • Commenting authority on proposed projects. • Regulates waste disposal in coastal waters.
United States Fish and Wildlife Service (U.S. FWS)	
• Fish and Wildlife Coordination Act • Federal Endangered Species Act (FESA) • Migratory Bird Treaty Act (MBTA) • National Wildlife Refuge System Administration Act • NEPA	• Reviews and comments on federal actions that affect many habitat-related issues, including wetlands and waters considered under CWA Section 404 and Rivers and Harbors Act Section 10 permit applications. • Regulates, monitors, and implements programs for protecting the ecosystems upon which freshwater and estuarine fishes, wildlife, and habitat of listed species depend. • Enforces international treaties and conventions related to species facing extinction. Enforces prohibition against the taking of migratory birds, their eggs, or their nests. • Designates lands for the conservation of fish and wildlife as part of the National Wildlife Refuge system. • Commenting authority on proposed projects.
National Marine Fisheries Service (NMFS)	
• Fish and Wildlife Coordination Act • FESA • Magnuson-Stevens Fishery Conservation and Management Act (MSA)	• Reviews and comments on federal actions that affect marine fishery resources and many habitat-related issues, including CWA Section 404 and Rivers and Harbors Act Section 10 permit applications. • Jurisdiction over most threatened or endangered marine species, including the

Table 4.5-4: Federal Agencies with Responsibilities for Natural Resources in San Diego Bay

Agencies and Applicable Laws	Authority and Activities
• Marine Mammal Protection Act (MMPA) • NEPA	green sea turtle (outside of beach nesting sites). • Responsible for maintaining and conserving fisheries and rebuilding overfished stocks. Responsible for determining whether projects or activities adversely impact Essential Fish Habitat (EFH) zones. • Enforces protection provisions for marine mammals. • Commenting authority on proposed projects.
United States Coast Guard (USCG)	
• Ports and Waterways Safety Act • Oil Pollution Act of 1990 • Fish and Wildlife Coordination Act • Rivers and Harbors Act of 1899, Section 10 • CWA • MPRSA of 1972	• Manages maritime transportation and bridges over navigable waters. Permitting for marine events (e.g. America's Cup). Responsible for maritime safety/law enforcement, and environmental protection. Establishes safety standards and conducts inspections. • Ensures cleanup of marine oil spills and other pollutants. Responsible for oil spill responses based on Area Contingency Plan. Prepares most regulations needed for implementation of Oil Pollution Act. • Commenting authority on navigational issues, such as structures affecting navigation, ACOE Section 404 dredge and fill permits, and new pilings. • Issues permits for bridges over navigable waters (up to mean high water line). • Enforces standards of oil and other hazardous waste discharge in marine waters.

Source: San Diego Bay Integrated Natural Resources Management Plan, 2000, Table 3-9.

Table 4.5-5: State Agencies with Responsibilities for Natural Resources in San Diego Bay

Agencies and Applicable Laws	Authority and Activities
California Coastal Commission (CCC)	
• California Coastal Act (Coastal Act) • Federal Coastal Zone Management Act (CZMA) • Federal Coastal Zone Act Reauthorization Amendments (CZARA) • California Environmental Quality Act (CEQA)	• Administers state and federal coastal acts by developing policies for implementation by local government through Local Coastal Plans (LCPs) and Port master plans, which must be approved by the CCC to allow local permitting authority in the coastal zone. • Retains permanent permit jurisdiction for proposed projects within the immediate shoreline (tidelands, submerged lands, and public trust lands). • Regulatory control over federal activities in the ocean, such as dredge disposal. • Works with State Water Board to develop Coastal Nonpoint Pollution Control Program. • Commenting authority. • As a certified Regulatory Program, can make CEQA-equivalent findings.
State Lands Commission (SLC)	
• Public Trust Doctrine • Public Resources Code (PRC) • CEQA	• Exclusive jurisdiction over all ungranted tide and submerged lands that are state owned. • Assists with use-related issues on Port tidelands and reviews Port-related projects on state trust lands. • May preclude the use of submerged lands and tidelands if inconsistent with public trust; requires Land Use Lease for encroachments, docks, crossings. • Establishes the ordinary high water mark and ordinary low water mark. • Commenting authority.
California Department of Fish and Game (CDFG)	
• California Fish and Game Code • PRC • California Endangered Species Act (CESA) • California Oil Spill Prevention and Response Act of 1990 • CEQA • Fish and Wildlife Coordination Act	• Conducts biological studies on fish and wildlife. • Regulates activities resulting in alteration of lakes and streams. • Manages sport and commercial harvest of fish and wildlife and aquaculture • Investigates pollution and toxic spills, in cooperation with the State Water Board and San Diego Water Board. • Enforces protection of state-listed sensitive animal and plant species. • Responsible for oil spill prevention, response, cleanup, and natural resource damage assessment in state waters. • Provides recommendations to other state agencies to prevent or mitigate adverse impacts on fish and wildlife; also has commenting authority on federal projects.

Table 4.5-5: State Agencies with Responsibilities for Natural Resources in San Diego Bay

Agencies and Applicable Laws	Authority and Activities
State Water Resources Control Board (State Water Board)	
• Clean Water Act (CWA) • Porter-Cologne Water Quality Control Act (Porter-Cologne Act) • California Water Code • CZARA • CEQA	• Protects water quality and administers water rights. • Designates beneficial uses and water quality objectives and protects beneficial uses statewide; adopts California Ocean Plan and an Enclosed Bays and Estuaries Plan. • Develops statewide nonpoint source pollution control plan. • Develops program to identify and clean up toxic hot spots in bays. • Working with CCC and San Diego Water Board to develop and implement Coastal Nonpoint Pollution Control Program. • Commenting authority.
California Regional Water Quality Control Board, San Diego Region (San Diego Water Board)	
• Federal CWA, Sections 401, 402 • Porter-Cologne Act • CEQA	• Daily regulation of point source discharges, storm water discharges, underground storage tanks, and above ground petroleum tanks. • Designation of beneficial uses and water quality objectives, and protection of beneficial uses for San Diego Region through adopted Basin Plan. • Prepares public reports on condition of water bodies. • Develops program to identify and clean up toxic hot spots in bays. • Commenting authority.
California Department of Pesticide Regulation (CDPR)	
• Various pesticide regulations	• Regulates antifouling paints used on boats and ships.
California Department of Parks and Recreation (State Parks)	
• PRC • CEQA	• Acquires and manages coastal lands for resource preservation and park and recreational uses; manages Silver Strand State Beach on the Bay. • Commenting authority.

Source: San Diego Bay Integrated Natural Resources Management Plan, 2000, Table 3-10.

Table 4.5-6: Applicable Local Agencies with Responsibilities for Natural Resources in San Diego Bay

Agencies and Applicable Laws	Authority and Activities
San Diego Unified Port District	
• State Port District Act • Port Master Plan • Port Ordinances/Code • California Coastal Act • California Environmental Quality Act (CEQA)	• Enables Port to operate and to promote the development of commerce, navigation, fisheries, and recreation within the Port. • Provides planning policies for the physical development of the Port's trust lands. • Regulates the conditions of use within Port's jurisdiction. • Authority to issue coastal development permits within its jurisdiction once the Master Plan is certified by the California Coastal Commission (CCC). • Lead agency and commenting authority on projects and plans.

Source: San Diego Bay Integrated Natural Resources Management Plan, 2000, Table 3-11.

Table 4.5-7: Regulations Pertaining To Invasive Species

Regulation	Implementing Agency/Agencies
Federal Regulations	
Nonindigneous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990	• Aquatic Nuisance Species Task Force (ANSTF), co-chaired by United States Fish and Wildlife Service (U.S. FWS) and National Oceanographic and Atmospheric Administration (NOAA)
National Invasive Species Act (NISA), 1996	• United States Coast Guard (USCG) • ANSTF
Executive Order 13112 (EO 13112), 1999	• National Invasive Species Council (NISC), co-chaired by secretaries of Agriculture, Commerce, and Interior; members also include secretaries of State, Defense, Homeland Security, Treasure, Transportation, and Health and Human Services, the administrators of the United States Environmental Protection Agency (U.S. EPA), United States Agency for International Development, the United States Trade Representative, and the National Aeronautics and Space Administration (NASA) • Includes coordination with NISC and ANSTF
Coast Guard Regulations under NISA (33 Code of Federal Regulations [CFR] 151), 1993-2005	• USCG
Animal Damage Control Act (1931)	• United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS)
Animal Health Protection Act	• USDA APHIS
Federal Clean Water Act (CWA)	• State Water Resources Control Board (State Water Board) • Regional Water Quality Control Boards (Regional Water Boards) • U.S. EPA
Federal Endangered Species Act (FESA) of 1973	• U.S. FWS • National Marine Fisheries Service (NMFS)
Lacey Act (1900; amended 1998)	• U.S. FWS
National Environmental Policy Act (NEPA)	• All federal agencies
Noxious Weed Act (1974)	• USDA • United States Department of the Interior (USDI) • Requires coordination and cooperation among federal land management agencies and state and local agencies
Plant Protection Act (2000)	• USDA

Table 4.5-7: Regulations Pertaining To Invasive Species

Regulation	Implementing Agency/Agencies
State Regulations	
California Environmental Quality Act (CEQA)	• All state and local agencies with discretionary project approval authority
Porter-Cologne Water Quality Control Act (Porter-Cologne Act)	• State Water Board • Regional Water Boards
California Fish and Game Code (Title 14 of the California Code of Regulations [CCR])	• California Department of Fish and Game (CDFG)
Harbors and Navigation Code, Article 2, Section 64	• California Department of Boating and Waterways
Ballast Management for Control of Nonindigenous Species Act (AB703) of 1999	• State Lands Commission (SLC)
Marine Invasive Species Act (AB433) of 2003	• SLC • CDFG
Coastal Ecosystems Protection Act of 2006	• SLC
California Ocean Protection Council Strategic Plan	• Various state agencies; supports the completion and implementation of the state rapid response plan, the California Aquatic Invasive Species Management Plan, and the California Noxious and Invasive Weed Action Plan

Source: California Aquatic Invasive Species Management Plan, Appendix B (CDFG, 2008)

4.5.2.1 Federal Regulations

Federal Endangered Species Act. The Federal Endangered Species Act (FESA) of 1973 sets forth a two-tiered classification scheme based on the biological health of a species. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range. Threatened species are those likely to become endangered in the foreseeable future; Special Rules under Section 4(d) can be made to address threatened species. Ultimately, FESA attempts to bring populations of listed species to healthy levels so that they no longer need special protection. The NMFS and U.S. FWS share responsibility for implementing FESA. Generally, U.S. FWS manages land and freshwater species, while NMFS manages marine and anadromous species. NMFS has jurisdiction over approximately 60 threatened or endangered species and 42 species of concern. U.S. FWS has jurisdiction over the remaining listed species and species of concern.

If a federal action exists and the project may impact listed species or designated critical habitat, consultation with the U.S. FWS and/or NMFS is required through section 7 of FESA. By law, section 7 consultation is a cooperative effort involving affected parties engaged in analyzing the effects posed by proposed actions on listed species or critical habitats. FESA prohibits the "take" of listed species by anyone unless authorized by the U.S. FWS or NMFS. Take is defined as "conduct which attempts or results in the killing, harming, or harassing of a listed species." Harm is defined as "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering." Harassment is defined as an "intentional or negligent 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." Therefore, in order to comply with FESA, any proposed project should be assessed prior to construction to determine whether the project will impact listed species or, in the case of a federal action on the project, designated critical habitats.

Section 7 of FESA directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the U.S. FWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of federal lands as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal permits, licenses, or other actions.

Section 7(a)(2) of FESA requires all federal agencies, in consultation with and with the assistance of the Secretary of the Interior, to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat. This includes any federal action including funding, licensing, permitting, authorizing, or carrying out activities under their jurisdictions. By law, section 7 consultation is a cooperative effort involving affected parties engaged in analyzing effects posed by proposed actions on listed species or critical habitat(s).

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) regulations prohibit the "take" of nearly all native bird species and their nests. While these laws and regulations were originally intended to control the intentional take of birds and/or their eggs and nests by collectors, falconers, etc., they can nevertheless be applied to unintentional take (e.g., destroying an active nest by cutting down a tree). It is sometimes possible to obtain a permit for relocating or removing a nest.

Marine Mammal Protection Act. All marine mammals are protected by the Marine Mammal Protection Act (MMPA). In addition, some marine mammal species are listed as endangered or threatened by FESA. NMFS is the federal agency charged with the responsibility of enforcing the provisions of MMPA. MMPA forbids the taking (including harassment, disturbance, capture, and death) of any marine mammals except as set forth in the Act.

Magnuson-Stevens Fishery Conservation and Management Act. The MSA, once known as the Federal Sustainable Fisheries Act of 1996, was amended in 1996 and requires the NMFS to identify, conserve, and enhance EFH for those species regulated under a federal FMP. The 1996 amendments to the MSA set forth a number of new mandates for the NFMS, eight regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The councils, with assistance from NMFS, are required to delineate EFH for all managed species. EFH is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Specifically, the MSA requires: (1) federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that could adversely affect EFH; (2) NMFS to provide conservation recommendations for any federal or state action that could adversely affect EFH; and (3) federal agencies to provide a detailed response in writing to NMFS within 30 days of receiving EFH conservation recommendations.

Clean Water Act. The CWA is a comprehensive piece of legislation that generally includes reference to the federal Water Pollution Control Act. Overall, the CWA seeks to protect the nation's water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the United States. These water quality standards are enforced by the U.S. EPA. The CWA also provides for development of municipal and industrial wastewater treatment standards and a permitting system to control wastewater discharges to surface waters. The CWA is the primary federal statute governing the discharge of dredged and/or fill material into waters of the United States. Relevant sections include the following:

- **Section 404.** The ACOE regulates discharge of dredged or fill material into waters of the United States under section 404 of the CWA. The term "waters of the U.S." is defined at 33 Code of Federal Regulations (CFR) Part 328 and includes *(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, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce, (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.* Wetlands are defined at 33 CFR 328.3*(*b*)* as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." Waters found to be isolated and not subject to CWA regulation are often still regulated by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act), as discussed below. Activities requiring section 404 permits are limited to discharges of dredged or fill materials into the waters of the United States. The proposed project will require a 404 Permit from the ACOE for the discharge of dredged and fill materials from and into San Diego Bay.
- **Section 401.** Section 401 of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the state in which the discharge originates or will originate from the state agency with jurisdiction over those waters (San Diego Water Board) that the project will comply with water quality standards, including beneficial uses, water quality objectives, and the state Antidegradation Policy (State Water Resources Control Board Resolution No. 68-16). The proposed project will require a 401 Permit in order to obtain the 404 Permit from the ACOE for the disposal of dredged materials from San Diego Bay and for the discharge of clean sand cover fill to San Diego Bay..

Rivers and Harbors Act. Section 10 of the Rivers and Harbors Act requires authorization from the ACOE for the creation of any obstruction to the navigable capacity of any of the waters of the U.S. ACOE approval is necessary to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the U.S. In addition, ACOE approval is necessary to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the U.S.

4.5.2.2 State Laws, Regulations, or Policies

California Fish and Game Code Section 1600 et seq. The CDFG, through sections 1600–1603 of the California Fish and Game Code, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. CDFG defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation."

The CDFG regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFG. While seasonal ponds are within the CDFG definition of wetlands, if they are not associated with a river, stream, or lake, they are not subject to jurisdiction of CDFG under Section 1602 of the California Fish and Game Code. No Streambed Alteration Agreement (SAA) is required for the proposed project.

California Fish and Game Code Section 3503. All birds are protected under sections 3503 and 3503.5 of the California Fish and Game Code. Under this Code, it is unlawful to take, possess, or needlessly destroy any bird of prey or nest or the nests or eggs of any bird species on the MBTA list except as otherwise provided in the codes and regulations. Disturbance of any active bird nest during the breeding season is prohibited by the California Fish and Game Code. When nesting birds are present on a specific property, take must be avoided, and project proponents are required to reduce or eliminate disturbances within the active nesting territories or during the nesting season.

California Endangered Species Act. The California Endangered Species Act (CESA) (California Fish and Game Code sections 2050–2098) was signed into law in 1984. It was intended to parallel the federal law. The CESA prohibits the unauthorized "take" of species listed as threatened or endangered under its provisions. However, a significant difference exists in the CESA definition of "take," which is limited to actually or attempting to "hunt, pursue, capture, or kill." CESA provisions for authorization of incidental take include consultation with a State agency, board, or commission that is also a State Lead Agency pursuant to CEQA; authorization of other entities through a 2081 permit; or adoption of a federal incidental take authorization pursuant to Section 2081.1. Similar to FESA, actions in compliance with the measures specified as a result of the consultation process or 2081 permit are not prohibited.

Marine Life Management Act. The Marine Life Management Act (MLMA) (Assembly Bill 1241; Statutes of 1998, Chapter 1052) directs the state to redesign California's system of marine protected areas (MPAs) to function as a network in order to: increase coherence and effectiveness in protecting the state's marine life and habitats, marine ecosystems, and marine

natural heritage, as well as to improve recreational, educational, and study opportunities provided by marine ecosystems subject to minimal human disturbance. Three types of MPA designation types are used in the MLMA process: state marine reserves, state marine parks, and state marine conservation areas.

MPAs are primarily intended to protect or conserve marine life and habitat, and are therefore a subset of marine managed areas (MMAs), which are broader groups of named, discrete geographic areas along the coast that protect, conserve, or otherwise manage a variety of resources and uses, including living marine resources, cultural and historical resources, and recreational opportunities.

The MLMA was enacted to promote sustainable marine fisheries, primarily through FMPs based on the best readily available scientific and other relevant information. Rather than assuming that exploitation should continue until damage has become clear, the MLMA shifts the burden of proof toward demonstrating that fisheries and other activities are sustainable. Also, rather than focusing on single fisheries management, the MLMA requires an ecosystem perspective including the whole environment. FMPs are prepared by the CDFG and submitted with implementing regulations for review and approval by the California Fish and Game Commission. FMPs have been prepared for abalone (*Haliotis* spp.), herring, squid, white seabass, and nearshore fisheries.

The MLMA has identified five study regions: the north coast region, the north central coast region, the San Francisco Bay region, the central coast region, and the south coast region. The central coast region was selected as the initial study region from which to launch the MLMA. The south coast study region MPA, where the project site is located, was developed in December 2010 and becomes effective in summer 2011. At this time, the MLMA does not identify an MPA in San Diego Bay in its south coast study region.

California Coastal Act. The California Coastal Act (California Public Resources Code [PRC] Division 20, section 30240) restricts land uses within or adjacent to environmentally sensitive habitat areas (ESHAs). The California Coastal Act section 30107.5 defines an ESHA as:

> *... any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

Included within this definition are wetlands, estuaries, streams, riparian habitats, lakes, and portions of open coastal waters that meet the rare or valuable habitat criteria. The California Coastal Commission (CCC) regulates the diking, filling, and dredging of wetlands within the

Coastal Zone. The California Coastal Act section 30121 defines "wetlands" as land "*which may be covered periodically or permanently with shallow water.*"

The CCC, through provisions of the California Coastal Act, is empowered to issue a Coastal Development Permit (CDP) for many projects located within the Coastal Zone. In areas where a local entity has a certified Local Coastal Program (LCP), the local agency is granted the authority to issue the CDP if it is consistent with the LCP. The CCC, however, has appeal authority for portions of LCPs and retains jurisdiction over certain public trust lands and in areas without an LCP.

The CCC regulates the diking, filling, and dredging of wetlands within the Coastal Zone. The California Coastal Act section 30121 defines wetlands as lands "within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." The waterside portions of the project site bayward of the pier head line are regulated and reviewed by the CCC. The project site is artificially stabilized and the shoreline is predominantly made up of sheet pile bulkheads and seawalls. Therefore, no areas within the project site contain wetlands as per the CCC definition. Additionally, the potential staging areas located in the Coastal Zone do not contain wetlands as per the CCC definition. The San Diego Unified Port District (Port District) has a CCC-certified Master Plan/LCP and will issue the CDP associated with the proposed project.

Porter-Cologne Water Quality Control Act. The federal CWA places the primary responsibility for the control of water pollution and for planning the development and use of water resources within the states, although it does establish certain guidelines for states to follow in developing their programs. California's primary statute governing water quality and water pollution is the Porter-Cologne Act. The Porter-Cologne Act grants the State Water Board and the Regional Water Board (i.e., the San Diego Water Board) broad powers to protect water quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the State Water Board and Regional Water Boards the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

Each Regional Water Board must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the State Water Board in its state water policy. The Porter-Cologne Act also provides that a Regional Water Board may include in its region a regional plan with water discharge prohibitions applicable to particular conditions, areas, or types of waste. The Regional Water Boards are also authorized to enforce discharge limitations, take actions to

prevent violations of these limitations from occurring, and conduct investigations to determine the water quality status of any of the waters of the State within their region. Civil and criminal penalties are also applicable to persons who violate the requirement of the Porter-Cologne Act or State Water Board/orders.

Waters subject to the provisions of Section 404 of the CWA also require Water Quality Certification from the San Diego Water Board pursuant to Section 401 of the CWA. Waters that do not fall under the jurisdiction of the San Diego Water Board pursuant to Section 401 of the CWA may require authorization through application for Waste Discharge Requirements (WDRs) or through waiver of WDRs, pursuant to the Porter-Cologne Act (California Water Code, Division 7).

4.5.2.3 Applicable Plans and Policies

FMPs and Applicable EFH Designations. The proposed project is located within a general area designated as EFH by two FMPs, the Coastal Pelagics and the Pacific Groundfish FMPs. Pursuant to 50 CFR 600.910(a), an adverse effect on EFH is defined as "any impact that reduces the quality and/or quantity of EFH." Species managed under the Highly Migratory Species FMP may have EFH within the project area, but EFH has not been designated for these species, and because these are highly mobile species, these species are likely to be transient rather than stationary at the project site. Salmonids have designated EFH within the Pacific Coast Salmon Plan FMP; however, the areas are all north of Point Conception and there currently is no EFH designated in San Diego Bay.[1] It is highly unlikely they would occur in the project area and they are not addressed further in this PEIR.

The CDFG adopted the Nearshore Fishery Management Plan (NFMP),[2] which manages 19 species of nearshore finfish. Several of these species are also managed by NMFS under other FMPs. The NFMP was prepared to accomplish the following goals: preventing overfishing, rebuilding depressed stocks, ensuring conservation, and promoting habitat protection and restoration. The NFMP employs five measures to meet these goals: (1) the Fishery Control Rule, which provides a protocol for determining sustainable levels of fishing that are then enforced by the CDFG; (2) Regional Management, which allows the CDFG to propose management tailored to regional conditions; (3) MPAs, which are used to ensure that the MLMA's objectives for protection and ecosystem integrity as well as sustainable fisheries are met; (4) Restricted Access, based on the California Fish and Game Commission's restricted access policy; and (5) Allocation, which allocates total allowable catch between commercial and recreational fisheries based on historical catches on a regional level.

1 Pacific Fishery Management Council, 1999. Pacific Coast Management Plan, Appendix A: Identification and Description of Essential Fish Habitat, Adverse Impacts, and Recommended Conservation Measures for Salmon.

2 CDFG, Marine Region. 2002. Nearshore Fishery Management Plan. August.

While some of the 19 species managed under the NFMP may occur within San Diego Bay, the plan regulates primarily fishing and restoration activities rather than short-term projects such as the proposed sediment remediation activity. Therefore, this plan is not expected to be applicable to the proposed project.

California Aquatic Invasive Species Management Plan. The CAISMP was adopted in 2008 by the State of California. This plan proposes management actions for addressing aquatic invasive species threats to the state of California. It focuses on the nonnative algae, crabs, clams, fish, plants and other species that continue to invade California's creeks, wetlands, rivers, bays and coastal waters. The CAISMP identifies several vectors and entry points for aquatic invasive species, including transoceanic shipping and associated ballast water, hull fouling, recreational gear, fishing equipment, drilling platforms, floating debris, docks, aquaculture packing materials, ornamental ponds and aquaria, shoreline restoration and construction projects, and water-based scientific research. The primary stated purpose of the CAISMP is to coordinate state programs, create a statewide decision-making structure, and provide a shared baseline of data and agreed-upon actions to allow state agencies to work together more efficiently. Eight objectives are outlined in this plan:

1. Coordination & Collaboration
2. Prevention
3. Early Detection & Monitoring
4. Rapid Response & Eradication
5. Long-term Control & Management
6. Education & Outreach
7. Research
8. Laws & Regulation

Coordination with and among state agencies will ensure that any applicable provisions of this plan are implemented during the proposed project activities.

Southern California Eelgrass Mitigation Policy. The NMFS and several other agencies adopted Revision 11 of the Southern California Eelgrass Mitigation Policy (SCEMP) in 1991 in order to standardize and maintain a consistent policy regarding mitigating adverse impacts to eelgrass resources. The policy provides guidance regarding when mitigation will be required, the nature of pre-activity mapping of eelgrass resources, and the required mitigation ratio (generally 1.2:1, except under specified circumstances when 1:1 mitigation may apply). The policy provides further direction as to how mitigation is conducted and identifies a monitoring protocol and success criteria. While some flexibility is allowed on a case-by-case

basis to agencies implementing this policy, it is anticipated that for the proposed project, mitigation will be required at the usual 1.2:1 ratio.

San Diego Bay National Wildlife Refuge Comprehensive Conservation Plan. Located in the southern portion of the Bay, the San Diego Bay NWR, consisting of the Sweetwater Marsh and South San Diego Bay Units, was dedicated in 1999 and includes 3,940 acres. Under a Comprehensive Conservation Plan, it includes intertidal salt marsh and submerged areas with eelgrass beds. It is the largest remaining contiguous mudflat in Southern California and is an important stop for migrating birds on the Pacific Flyway. It includes some former salt evaporation ponds which the U.S. FWS is attempting to convert back into natural wetland.

The San Diego Bay NWR provides habitat for federally listed as endangered and threatened species under FESA: the endangered California least tern, light-footed clapper rail, California brown pelican (now delisted), and salt marsh bird's beak; and the federally listed as threatened western snowy plover, Pacific green sea turtle, and coastal California gnatcatcher (*Polioptila californica californica*). Of these species, the least tern, clapper rail, and snowy plover all nest on the San Diego Bay NWR.

Three of the federally listed endangered species supported by the San Diego Bay NWR (salt marsh bird's beak, California least tern, and light-footed clapper rail) are also listed as endangered by the State of California. The California brown pelican is now delisted. The salt marsh habitat within this refuge also supports Belding's savannah sparrow, another species listed as endangered by CDFG under CESA.

The San Diego Bay NWR also supports 26 species identified by the U.S. FWS as Birds of Conservation Concern. Of these species, the gull-billed tern, elegant tern, and black skimmer nest at the South Bay Salt Works site in the South San Diego Bay Unit.

San Diego Unified Port District Master Plan. The Port District Master Plan is intended to provide the official planning policies for the physical development of the tide and submerged lands granted to the Port District. The project site is located under the planning jurisdiction of the Port District and is identified as District 4 in the certified Port Master Plan. The Port District is a special government entity, created in 1962 by the San Diego Unified Port District Act, California Harbors and Navigation Code, in order to manage San Diego Harbor and administer certain public lands along San Diego Bay. The Port District may use the powers and authority granted to protect, preserve, and enhance the physical access to San Diego Bay, the natural resources of the bay (including plant and animal life), and the quality of waters in the bay (section 4[b], Port District 1996). The Port District holds and manages as trust property on behalf of the people of the State of California, including the land occupied by NASSCO and BAE Systems and all five potential staging areas with the exception of a

portion of the proposed acreage at potential Staging Area 4 (Figure 3-2). Approximately 2.49 usable acres north of East Harbor Drive are in the jurisdiction of the city of San Diego. The Port Master Plan water use designation within the limits of the proposed project is Industrial–Specialized Berthing or Marine–Related Industrial.

California Ocean Plan. The State Water Board has adopted a Water Quality Control Plan (WQCP) for ocean waters of California called the California Ocean Plan. With the exception of wildlife habitat, the California Ocean Plan identifies the same beneficial uses as the Basin Plan. The California Ocean Plan has similarly established water quality objectives for bacteriological, physical, chemical, radioactive, and biological characteristics. The California Ocean Plan also incorporates general requirements for the management of wastes discharged directly into the ocean, effluent quality requirements for waste discharges directly into the ocean, discharge prohibitions, and general provisions. The California Ocean Plan is incorporated by reference into the Basin Plan.

Water Quality Control Plan for the San Diego Basin. The Basin Plan is designated to preserve and enhance water quality and protect the beneficial uses of all regional waters. The Basin Plan is the state implementation of the federal CWA provisions for water quality planning and management contained in 40 CFR 130 and 40 CFR 131. Division 7 of the California Water Code (the Porter-Cologne Act) establishes a regulatory program to protect water quality and to protect beneficial uses of state waters.

Beneficial uses of water are defined in the Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. San Diego Bay has multiple designated beneficial uses. These designations address water quality, not the apportioning or consumption of the available resources. The long-term beneficial uses of San Diego Bay include Industrial Service Supply (IND), Navigation (NAV), REC-1, REC-2, COMM, BIOL, EST, WILD, RARE, MAR, MIGR, SPWN, and SHELL. The long-term beneficial uses for the Pacific Ocean include: IND, NAV, REC-1, REC-2, COMM, BIOL, WILD, RARE, MAR, AQUA, MIGR, SPWN, and SHELL. An adverse effect or impact on a beneficial use occurs where there is an actual or threatened loss or impairment of that beneficial use. The Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters.

General water quality objectives have been prescribed in the Basin Plan for all surface waters, enclosed bays, and estuaries, coastal lagoons, and groundwater within the San Diego Region. Brief summaries of the objectives applicable to the project receiving waters are provided in Table 4.2-1 in Section 4.2.

San Diego Bay Integrated Natural Resources Management Plan. The INRMP is a San Diego Bay Ecosystem Plan, a long-term strategy sponsored by two of the major managers of the San Diego Bay: the United States Department of the Navy (Navy) and the Port District. The plan is dated September 2000, and a preliminary draft update dated June 2007 has been released online. The stated intent of the INRMP is to provide direction for the good stewardship that natural resources require, while also supporting the ability of the Navy and Port District to meet their missions and continue functioning within the bay. The ecosystem approach reflected in the INRMP looks at the interconnections among all of the natural resources and human uses of the bay, across ownership and jurisdictional boundaries. The stated goal of the INRMP is to ensure the long-term health, recovery, and protection of San Diego Bay's ecosystem in concert with the bay's economic, Naval, recreational, navigational, and fishery needs. The INRMP includes a vision for San Diego Bay, a detailed description of the current state of the ecosystem, and a pathway to change for proceeding towards the goal and vision. It contains over 1,000 strategies for better management of the bay, which are based on core strategies to manage and restore habitats, populations, and ecosystem processes; plan and coordinate projects/activities so that they are compatible with natural resources; improve information sharing, coordination, and dissemination; conduct research and long-term monitoring that support decision-making; and establish a Stakeholders' Committee and Focus Subcommittees for collaborative, ecosystem-based problem solving in pursuit of the goal and objectives.

4.5.3 Thresholds of Significance

The impact significance criteria used for this analysis are based primarily on Appendix G of the State CEQA Guidelines (2010). The project may be considered to have a significant effect related to biological resources if implementation would result in one or more of the following:

Threshold 4.5.1: 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 the U.S. FWS;

Threshold 4.5.2: A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or U.S. FWS;

Threshold 4.5.3: A substantial adverse effect on federally protected wetlands as defined by section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

Threshold 4.5.4: 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 impediments to the use of native wildlife nursery sites;

Threshold 4.5.5: A conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

Threshold 4.5.6: A conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state HCP.

4.5.4 Impacts and Mitigation

Applicable regulations, plans, and policies are discussed in detail in Section 4.5. The IS prepared by the San Diego Water Board (Appendix A) determined that the project would not conflict with any local policies or ordinances protecting biological resources, and that mitigation and habitat protection will be consistent with the SCEMP. Therefore, this issue (Threshold 4.5.5) is not addressed further in this PEIR.

The IS also concluded that because no known federally protected wetlands exist in or near the project site, no impacts would occur, and no further study is required with respect to this issue. In addition, the IS stated that because the proposed project is not within the area of any adopted HCP, NCCP, or other approved local, regional, or state HCP, no further analysis of this issue is required. However, subsequent to the issuance of the IS, potential Staging Area 5 was identified and is located in proximity to federally protected wetlands associated with the Sweetwater Marsh Unit of the San Diego Bay NWR, which is governed by the San Diego Bay NWR Sweetwater Marsh and South San Diego Bay Units Comprehensive Conservation Plan (U.S. FWS, 2006). Therefore, potential indirect impacts with respect to Thresholds 4.5.3 and 4.5.6 are discussed below as they relate to the San Diego Bay NWR.

Complex regulations have been adopted to prevent the spread of invasive species, which are outlined in Table 4.5-7. The State Water Board is responsible for the implementation of many of these regulations. Four nonnative species have been documented in the project area at the BAE Systems and/or NASSCO shipyard areas. Furthermore, over 80 nonnative species, including several invasive species, have been documented within the San Diego Bay, as discussed above in Section 4.5.1.9. The invasive species that may be present at the site are not expected to be spread by project-related activities. *Caulerpa*, an invasive species that could be spread through dredging activities, is not known to occur at the site or within the bay. Furthermore, compliance with the 2008 *Caulerpa* Control Protocol, proposed as part of the project, will ensure that any locations of this species within the impact area are identified prior to conducting project activities, and that appropriate measures are taken to prevent the spread of this species. Therefore, impacts related to invasive species are anticipated to be less than significant.

Methods. The potential impacts described below are based on the conclusions in the project-specific *Marine Biological Resources Assessment Technical Report, Shipyard Sediment Site* (Geosyntec, May 2011), which is included as Appendix F. LSA biologists provided additional analysis of terrestrial resources that could be affected by project-related activities (e.g., increased disturbance within and adjacent to potential staging areas).

4.5.4.1 Potentially Significant Impacts

Impacts to Vegetation/Sensitive Natural Communities. As stated in the IS, patches and beds of eelgrass are present within the project area and would be adversely affected by dredging activities through direct removal. Eelgrass bed habitat has been identified as a sensitive marine resource by the CDFG, NMFS, and U.S. FWS. Eelgrass beds serve as refuges, foraging areas, and nursery habitats for various coastal and bay invertebrates, fishes, and birds. The loss of eelgrass habitat will be addressed through the SCEMP, which requires a minimum in-kind replacement at a ratio of 1.2:1 and a 5-year monitoring requirement to determine success. Implementation of this policy, which is proposed, is expected to ensure that the impact is less than significant.

As stated in the IS, the Shipyard Sediment Site is not identified in any designated important fish or wildlife movement corridor. Mobile marine organisms such as fish, marine mammals, and sea turtles are anticipated to avoid the immediate vicinity of the dredging activities; however, due to the site's location on the periphery of San Diego Bay, it is not anticipated to curtail the movement of species past the site or throughout the bay.

Mitigation Measure 4.5.1 will ensure compliance with the SCEMP. Impacts to eelgrass beds are less than significant with mitigation incorporated.

Impacts to Marine Invertebrates. Dredging and placement of clean sand cover will result in the loss (primarily through mortality, but also through relocation) of the majority of benthic infauna within the dredge/capping footprints (approximately 759,790 square feet). It is assumed that a portion of the mobile benthic invertebrate community found in the project site may relocate outside of the impact area during dredging and clean sand cover placement activities. This will have a short-term, localized impact on the benthic community and benthic foraging species. No substantial loss of benthic infauna is expected at the potential staging areas as no sediment removal will occur, and in-work activities in these staging areas are limited to the offloading of dredged material from a floating material barge to land.

It is anticipated that there will be no long-term reductions in the amount of benthic soft bottom habitat or populations of benthic invertebrates within the project site as a consequence of dredging and placement of clean sand cover. The area is typical of other bay environments in Southern California and is dominated by species adapted to constant environmental stresses. Following the completion of dredging/clean sand cover placement,

the benthic community of invertebrates, consisting mostly of polychaete and oligochaete worms, snails and clams, and micro-crustaceans, are expected to repopulate the dredged areas in San Diego Bay. Recolonization is expected to begin quickly after the dredging has occurred, through the settlement of planktonic larvae. Because the area will be somewhat deeper, it is possible that a slightly different community of benthic invertebrates will be present following dredging, compared to the current conditions. It is likely that the sediments will be coarser and, because of the dredging, the sediment will contain a lower concentration of contaminants, which will enhance the benthic community. The dredged areas and clean fill sand are expected to be recolonized by a more diverse assemblage of benthic invertebrates compared to existing conditions, and benthic biomass (i.e., productivity) will be higher, which would benefit the benthic foraging fishes of the bay. Full colonization is anticipated be complete within 1 to 2 years.

An increase in turbidity is anticipated during dredging and clean sand cover placement, which will result in a temporary reduction in submarine light levels, resulting in a short-term reduction of plankton productivity within the project area. Because plankton drifts with the currents and turbidity is expected to be localized, impacts to the plankton community are anticipated to be short term and less than significant.

The project addressed in this PEIR is the implementation of the Tentative CAO. Finding 34 of the Tentative CAO requires post-remediation monitoring to verify that remaining pollutant concentrations in the sediments will not unreasonably affect San Diego Bay beneficial uses. The CAO requires post-remediation monitoring at 2, 5, and (if required) 10 years following remediation activities, and specifies success criteria in Directive D. Furthermore, the Tentative CAO requires Trigger Exceedance Investigation and Characterization as part of the monitoring activity, which will be used to identify and evaluate issues that may be adversely affecting the site's progress toward meeting the success criteria. The State Water Board will then have discretion to order further remedial actions to address any impairment to beneficial uses, including adverse effects to the benthic community. Therefore, impacts related to marine invertebrates are anticipated to be less than significant.

Impacts to Fish/EFH. Sediment and water quality effects on marine biological resources from dredging would include temporary and localized increases in turbidity. Turbidity may also increase if vessel propellers impact the bay floor or prop wash stirs up bottom sediments.

Dredging activities will also have a potential to release detectable levels of sediment-bound contaminants into the water column that could be redistributed through the tidally-induced movement of the turbidity plume. Organically enriched sediments resuspended into the water column during dredging will also cause a slight decrease in dissolved oxygen levels. Tidal currents will slowly dissipate the oxygen-poor water mass and replenish ambient oxygen levels within one to several tidal exchanges.

Accidental oil or fuel spills that could potentially occur during the proposed dredging operations could result in adverse effects on water quality, and subsequently the fish and wildlife of San Diego Bay, depending on the severity of the spill. Such events, if they were to occur, would likely be localized spills of lighter, refined diesel fuels, gasoline, and lubricating oils that are highly toxic to marine life. The potential for the occurrence of petroleum-product leaks or spills would be low, but the potential for significant, long-term effect on marine resources if such spills occurred would be moderate to high. Mitigation Measures 4.3.1, 4.3.2, and 4.3.3, incorporated into the proposed project, address the potential for oil and fuel spills or leaks.

There is no mortality anticipated of open water schooling fishes (atheriniids or anchovies) or fishes associated with piling habitats (i.e., black surfperch, pile perch, kelpfish, and pipefish). Water column and bottom dwelling fishes (such as halibut and gobies) are expected to swim away from the immediate work area during active deployment of the silt curtain. It is uncertain if any water column biota will become entrapped within the silt curtain after deployment; however, if a few individual fish are entrapped and subsequently perish, it is not anticipated to adversely affect the local population. Silt curtains are proposed as a mitigation measure to contain turbidity within the project area created during dredging activities. Regardless of which of the two scheduling options proposed for dredging is implemented, phasing of the dredging activities during 2 to 2.5 years or a continuous dredging cycle over a 12.5-month period, fish are expected to be able to find sources of food on nearby hard substrata outside of the project area.

Potential impacts to special-status fish species with the potential to occur in the Shipyard Sediment Site are as follows:

- **California Halibut:** Adult and juvenile halibut are found in many areas of San Diego Bay, and they will potentially be present within the project site and the waters adjacent to the potential staging areas. During dredging activities, adults/juveniles in the immediate area will swim to areas outside the immediate impacted zone. During offloading activities, adults/juveniles will be able to swim freely under the material barge as this mimics normal vessel docking conditions in the bay. No mortality is anticipated as a result of project activities. Therefore, the level of impact on halibut is expected to be less than significant.
- **Coastal Pelagic FMP Species – Northern Anchovy:** Project activities that would affect identified Coastal Pelagic FMP species (northern anchovy) include increased water turbidity caused by dredging and sand covering activities proposed for the project. These impacts could result in northern anchovy temporarily avoiding the project areas, and a minimal potential for mortality of larval anchovy. An increase in the suspended sediment load would temporarily increase the exposure of these species to potentially toxic levels of contaminants and clog their gills, resulting in a reduced ability to feed. The use of silt curtains will act as a preventive barrier for any FMP pelagic schooling species entering

the construction area. Therefore, potential impacts on Coastal Pelagic FMP species or their EFH are expected to be less than significant.

- **Pacific Groundfish FMP Species:** Of the 83 species managed under the Pacific Groundfish FMP (NMFS, 2008), two have been found in San Diego Bay, each with very low occurrences. In the event that Pacific Groundfish species are present in San Diego Bay during dredging activities, the deployment of the silt curtains will act as a preventive barrier for any groundfish entering the construction area. The impact of turbidity created during dredging activities will be short-term and localized. Therefore, the potential impact of the project on FMP groundfish species is expected to be less than significant.

Mitigation Measures 4.2.1 through 4.2.11 in Section 4.2, Hydrology and Water Quality, require the implementation of Best Management Practices (BMPs), which are proposed to prevent the spread of any turbidity plume or release of sediment-bound contaminants out of the dredging area, and thereby reduce potential adverse impacts to marine resources, sensitive species, and rare and endangered species. BMPs include use of an environmental dredge bucket, installation of silt curtains, operational controls, and water quality monitoring. The measures also require the inclusion and implementation of a Dredging Management Plan (DMP) for the project, which will assist in preventing accidental spills and providing the necessary guidelines to follow in case of an oil or fuel spill, and is expected reduce the potential for a significant long-term impact to biological marine resources to less than significant.

Impacts to Sea Turtles. Although green sea turtles are known to be in San Diego Bay, the potential for adverse impacts to an individual during dredging activities is low. Dredging, sand covering, and vessel movements within the project area would potentially result in a behavioral modification to sea turtles that would include a change in swimming behavior to avoid increased noise, turbidity, or the vessel movements. Additionally, the deployment of silt curtains surrounding the dredging/sand covering activities will act as a preventive barrier for green sea turtles entering the construction area.

Material barges transporting dredged material to potential sediment staging sites within San Diego Bay would be traversing a short distance through areas where green sea turtles may occur. Therefore, there is a potential that green sea turtles may be in the general project barge transit lanes when barge transport activities are occurring. Similar to typical ongoing vessel traffic occurring in San Diego Bay, it is likely that green sea turtles would change their swimming behavior to avoid vessel movements.

Use of silt curtains throughout the entire project, as required by Mitigation Measures 4.2.2 and 4.2.3 in Section 4.2, Hydrology and Water Quality, will act as a preventive barrier to reduce sea turtle exposure to dredging activities. Mitigation Measure 4.3.5 in Section 4.3, Hazards and Hazardous Materials, of this PEIR requires the contractor to establish and follow a Communication Plan that will identify vessel speed limitations. In addition,

Mitigation Measures 4.5.2 through 4.5.8 would specifically reduce impacts to sea turtles to less than significant by minimizing activity and damage within nearby eelgrass beds, assigning a marine biologist to provide crew training, ensuring that operation of barges and work vessels is conducted in a manner to minimize potential harm to turtles, providing daily briefings of turtle occurrence probability, temporarily halting activities if a turtle is sighted, and coordinating with/notifying resource agencies. Impacts to this species will be less than significant with mitigation incorporated.

Birds. Impacts to birds would occur as a result of activities associated with dredging, placement of clean sand cover, and landside activities processing the dredged materials, and would primarily affect seabirds (e.g., gulls, cormorants, terns, pelicans, scoters) and waterfowl (e.g., brants and sea-going ducks). No birds are known to nest within or immediately adjacent to the dredging/clean sand cover placement area, and any birds nesting in the vicinity would be accustomed to various shipyard-related activities. Impacts to seabirds and waterfowl are expected to primarily consist of increased noise and human disturbance to foraging and roosting seabirds and waterfowl, and may result in avoidance of areas where project-related activities are in progress. Impacts to marine invertebrates and fish may also affect the prey base available for foraging birds within the limits of the silt curtains at the project site during project-related activities.

Impacts to birds nesting within landscaped areas within and adjacent to potential staging areas could also occur, including California horned lark, Costa's hummingbird, and Cooper's hawk. Impacts are anticipated to be short term (for the duration of the project, up to 2.5 years), and, provided the shipyards comply with all applicable regulations (e.g., MBTA, California Fish and Game Code), would be less than significant for these species and other common bird species.

Impacts to special-status seabirds are discussed below.

- **California Least Tern:** Construction activities may disturb the California least tern if it is present during dredging activities. If construction activities are performed during the scheduling option that includes approximately 7-month dredging episodes extending over 2 to 2.5 years, potential impacts to the California least tern are likely to be less than significant due to work being performed outside the breeding season. If construction activities are performed during the scheduling option of a continuous dredging cycle over a 12.5-month period, impacts could occur during the nesting season. However, the project site represents a very small area of San Diego Bay, and only small areas of the site are to be affected at any one time regardless of the dredge schedule, which leaves other open water areas available for this species to forage. Map 2-10 in the INRMP illustrates the distribution of prey abundance for the California least tern. The majority of the sediment remediation site is in an area with relatively low abundance of prey species, although a narrow band of higher abundance occurs adjacent to the shoreline. There is no

shallow water foraging habitat at the project site, limiting feeding opportunities. The least tern may choose to avoid the immediate construction work area based on the lack of foraging habitat and the fact that no known nests have been recorded at the site. If so, impacts would be limited to potentially affecting flight patterns through site avoidance and incremental reduction of available prey, with the possibility of increasing the effort for the species to travel to and from foraging sites. These impacts, on their own, are unlikely to significantly affect nesting success; however, if other projects are proposed in the vicinity that also affect available foraging areas, the cumulative effect could be significant. Cumulative impacts are discussed further in Section 4.5.5.

In accordance with the Endangered Species Act Consultation Handbook (U.S. FWS, 1998), informal section 7 consultation with U.S. FWS and NMFS will be implemented to determine what effect the proposed project will have on the California least tern, explore means to modify the proposed project to reduce or remove adverse effects to the California least tern, determine the need to enter into formal section 7 consultation, and explore the design or modification of the proposed project plans to benefit the California least tern. Based on the results of the informal consultation with U.S. FWS/NMFS, either concurrence that the project will not adversely affect the California least tern will be received or formal consultation will be required if concurrence is not received. If formal consultation is requested by U.S. FWS/NMFS, a biological assessment will be required to be submitted documenting the presence of the California least tern near the proposed project area and a description of the effects of the proposed project. U.S. FWS and NMFS will formulate a Biological Opinion and Incidental Take Statement and conclude the formal consultation. The agency requirements for the project will be binding.

- **Elegant Tern, Black Skimmer:** Impacts to these species would be similar to those described above for the California least tern, consisting of construction-related impacts to foraging habitat during project-related activities that occur during the breeding season. These two species nest primarily in the South San Diego Bay Unit of the San Diego Bay NWR; therefore, impacts to flight patterns of foraging birds are less likely. Proposed measures to minimize impact to California least tern will likely benefit these species, as elegant tern and black skimmer nest during a similar timeframe as the California least tern.
- **California Brown Pelican:** Construction activities may disturb the California brown pelican, if present during such activities. Impacts to marine invertebrates and fish may also affect the prey base available for foraging birds within the limits of the silt curtains at the project site during project-related activities. However, the project site represents a very small area of San Diego Bay, and only small areas of the site are to be affected at any one time regardless of the dredge schedule, leaving available other open water areas for this species to forage. Furthermore, California brown pelicans in the region are relatively tolerant of most human activities conducted within the bay, including dredging. Therefore, because construction is confined to a small area within the bay, because this species is fairly tolerant, and because it is no longer considered a threatened species, potential impacts to California brown pelicans will be less than significant.

- **Double-Crested Cormorant:** Construction activities may disturb the double-crested cormorant, if present during such activities. However, disturbance from construction will be limited to small areas of the project site at any one time, leaving other open water areas available for this species. Because cormorants are opportunistic feeders and alter their diets in response to fish stocks available at the time, this species is not expected to forage at the dredging site due to the absence of prey as a result of the silt curtains. Double-crested cormorants within the area have become accustomed to human activity at the shipyards and within the bay. Therefore, because construction is confined to a small area within the bay, and because suitable prey will not be available at the shipyard sediment site, potential impacts to double-crested will be less than significant.
- **Brant:** Dredging and other project activities may disturb this species, if present during such activities. However, disturbance from construction will be limited to small areas of the project site at any one time, leaving available other open water areas for this species. Impacts to eelgrass beds would temporarily reduce available foraging areas for brant within the project area; however, this impact would be limited to the duration of the project plus the reestablishment period for eelgrass and would be less than significant.

To ensure that any potential impacts remain less than significant, Mitigation Measure 4.5.9 is proposed requiring a qualified biologist to monitor least terns and other special-status seabirds and waterfowl during all construction activities. Impacts to this species will be less than significant with mitigation incorporated.

Impacts to Mammals. Project-related activities may disturb marine mammals, if present during such activities. Noises created during dredging would be attributed to the clamshell operating in the submerged aquatic environment, as described in more detail in Section 4.4 of this PEIR. The measured sound exposure levels of a clamshell dredge may range between 75 and 88 A-weighted decibels (dBA) at 50 feet from the source. It is possible that marine mammals may modify their behavior as a result of the noise produced by dredging operations.

The NMFS defines "harassment" as follows:[1]

> *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,*

[1] http://www.nmfs.noaa.gov/pr/glossary.htm#l, accessed May 20, 2011

> *breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.*

Based on Port of Los Angeles response to comments for the Port of Los Angeles Channel Deepening Project EIR/EIS (2009), underwater noise from the clamshell dredging associated with that project would be below the NMFS-designated Level A Harassment threshold for pinnipeds. This would imply that clamshell and dredging effects for marine mammals near the Shipyard Sediment Site would also be less than significant. No mitigation measure is proposed for noise production from dredging operations.

Dredging operations could disturb sediments containing sediment-bound contaminants that are potentially harmful to marine mammals. Exposure to these contaminants that could cause acute toxicity or bioaccumulation to marine mammals and sea birds would be avoided by implementation of standard conditions of the requirements of the San Diego Water Board for Section 401 Certification (discussed in more detail in Section 4.2 of this PEIR). The conditions require that dredging Best Management Practices (BMPs) are incorporated into the project to ensure that impacts related to the effects of turbidity and dissolved concentrations of some contaminants are temporary and less than significant. Implementation of these measures will ensure that any impacts to marine mammals related to contamination effects from dredging would be less than significant.

Barges transporting dredge material to and from the project site have a low potential to collide with marine mammals. Marine mammals are generally capable of avoiding boat traffic, particularly at the speeds at which the vessels will likely be transiting. Marine mammals in San Diego Bay have also likely habituated to vessel traffic since vessels commonly transit within and in and out of the Bay. According to the South Coast Marine Protected Areas Final EIR (Figure 7-20), there are no established marine mammal rookeries or haul-out areas in the vicinity of the site.

Use of silt curtains throughout the entire project, as required by Mitigation Measures 4.2.2 and 4.2.3 in Section 4.2, Hydrology and Water Quality, will act as a preventive barrier to reduce marine mammal exposure to dredging activities. Mitigation Measure 4.3.5 in Section 4.3, Hazards and Hazardous Materials, of this PEIR requires the contractor to establish and follow a communication plan that will identify vessel speed limitations. In addition, Mitigation Measures 4.5.3 through 4.5.8 would specifically reduce impacts to marine mammals to less than significant by assigning a marine biologist to provide crew training, ensuring that operation of barges and work vessels is conducted in a manner to minimize potential harm to turtles, providing daily briefings of turtle occurrence probability, temporarily halting activities if a turtle is sighted, and coordinating with/notifying resource agencies. Impacts to marine mammals are anticipated to be less than significant with mitigation incorporated.

Indirect Effects on Sweetwater Marsh Unit of the San Diego Bay NWR. As described above, potential Staging Area 5 is adjacent to the Sweetwater Marsh Unit of the San Diego Bay NWR, which provides habitat for a variety of special-status species. Offsite indirect effects associated with the proposed project that could affect areas within the San Diego Bay NWR would be limited to potential increases in noise and human activity at potential Staging Area 5. According to the EIS prepared for the Comprehensive Conservation Plan for the San Diego Bay NWR, existing noise levels vary throughout the Sweetwater Marsh Unit, with the most significant noise generated by the military, commercial, and private fixed wing and rotary wing aircraft that fly over San Diego Bay NWR lands. Other sources of noise in the vicinity of the Sweetwater Marsh Unit include vehicle traffic on I-5, boat operations in the adjacent navigation channel, and Port and other industrial activities that occur immediately to the north and northwest (presumably including at potential Staging Area 5).

Noises created during offloading at each of the potential staging areas would be attributed to the excavator operating on the dock and a bulldozer spreading dredged sediment at the dewatering pad, as described in Section 4.4 of this PEIR. A standard-size excavator and bulldozer produce approximately 80-90 dBA sound levels during operation. Noise levels decrease with distance, and may be further reduced if the activities are obstructed by on-site structures. The duration of the excavator noise will occur during material barge unloading episodes, and bulldozer activity will occur during the dumping of dredged material at the dewatering pad and subsequent spreading. It is assumed that each piece of machinery would be operating approximately 7 hours per workday. Noise attributed to offloading a material barge or spreading dredged sediment is not expected to significantly affect aquatic marine life. It is anticipated that noise produced from the offloading and dewatering activities will not significantly affect foraging seabirds and waterfowl (e.g., California least tern) as these species will not be foraging in these upland areas.

The southern parcel of potential Staging Area 5 is approximately 1,100 feet from the D Street Fill least tern nesting location (Figure 4.5-2). The typical noise levels from an excavator and bulldozer 50 feet from the source are 82 and 85 dBA, respectively, as discussed in Section 4.4 of this PEIR. If Staging Area 5 is selected as an offloading/dewatering site for the project, the noise produced from site machinery will not significantly affect the D Street Fill least tern nesting location because the sound levels from each source will be below 70 dBA due to the approximate distance (1,100 feet) between the proposed staging area and the least tern nesting location. However, portions of the usable areas of potential Staging Area 5 are within 100–200 feet of the salt marsh area associated with Paradise Marsh, part of the Sweetwater Marsh Unit of the San Diego Bay NWR, which provides potential nesting habitat for several special-status and/or listed species. If activities are conducted within the breeding season of special-status species that may occur in the Paradise Marsh area, there is a potential for disruption of nesting activities of listed species, including Belding's savannah sparrow and light-footed clapper rail, resulting in potentially significant impacts.

The informal consultation with U.S. FWS described above will also evaluate potential impacts to nesting California least terns and other federally listed species that would occur if activities are proposed at potential Staging Area 5. However, species such as Belding's savannah sparrow are not federally listed, and coordination with CDFG will be required to ensure that impacts to state-listed and special-status species are minimized or avoided.

Mitigation Measures 4.5.10 and 4.5.11 are proposed to avoid and minimize impacts to special-status species occurring within Paradise Marsh and the Sweetwater Marsh Unit of the San Diego Bay NWR. Indirect impacts to special-status species within the San Diego Bay NWR will be less than significant with mitigation.

4.5.4.2 Mitigation Measures

Mitigation Measure 4.5.1: A pre-construction eelgrass habitat mapping survey for the Shipyard Sediment Site shall be completed by the responsible parties within 120 days of the proposed start dates of each project phase in accordance with the Southern California Eelgrass Mitigation Policy (SCEMP) (National Marine Fisheries Service [NMFS], 1991 as amended) to document the amount of eelgrass that will likely be affected by dredging activity. The results of these surveys shall be integrated into a Final Eelgrass Mitigation Plan prepared by the responsible parties for the project and used to calculate the amount of eelgrass to be mitigated. The Final Eelgrass Mitigation Plan shall be subject to approval by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) and NMFS, and shall include the following elements:

- A detailed map of the area including distribution, density and relationship to depth contours of any eelgrass beds likely to be impacted by project construction.
- The identification of mitigation site factors such as distance from project, depth, sediment type, distance from ocean connection, water quality, and currents should be considered in evaluating potential sites.
- Techniques for the construction and planting of the eelgrass mitigation site consistent with the best available technology at the time of the project.
- Proposed mitigation timing schedule.
- Proposed mitigation monitoring activities.

A post-dredging project eelgrass survey shall be completed by the responsible parties within 30 days of the completion of each dredging episode in accordance with the SCEMP and shall be submitted to the NMFS, United States Fish and Wildlife Service (U.S. FWS), California Department of Fish and Game (CDFG), and the Executive Director of the California Coastal Commission (CCC), as well as the San Diego Water Board.

Criteria for determination of transplant success shall be based upon a comparison of vegetation coverage (area) and density (turions[1] per square meter) between the project adjusted impact area (original impact area multiplied by 1.2 or the amount of eelgrass habitat to be successfully mitigated at the end of 5 years) and the mitigation site(s). The extent of vegetated cover is defined as that area where eelgrass is present and where gaps in coverage are less than 1 meter between individual turion clusters. Density of shoots is defined by the number of turions per area present in representative samples within the original impact area, control or transplant bed.

Specific criteria are as follows:

- The mitigation site shall achieve a minimum of 70 percent area of eelgrass and 30 percent density as compared to the adjusted project impact area after the first year.
- The mitigation site shall achieve a minimum of 85 percent area of eelgrass and 70 percent density as compared to the adjusted project impact area after the second year.
- The mitigation site shall achieve a sustained 100 percent area of eelgrass bed and at least 85 percent density as compared to the adjusted project impact area for the third, fourth, and fifth years.

The amount to be transplanted shall be based upon the guidelines in the SCEMP. If remedial transplants at the project site are unsuccessful, then eelgrass mitigation shall be pursued at the secondary eelgrass transplant location. The San Diego Water Board shall verify implementation of this mitigation measure.

[1] A turion is a specialized overwintering bud produced by aquatic herbs.

Mitigation Measure 4.5.2: In order to protect sea turtles that could potentially forage within and among eelgrass beds identified at or near the project site, the project marine biologist shall mark the positions of eelgrass beds with buoys prior to the initiation of any construction to minimize damage to turtles foraging within eelgrass beds outside the construction zone. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify that buoys have been properly placed.

Mitigation Measure 4.5.3: The project marine biologist shall meet with the construction crews prior to dredging as well as periodically throughout the project to review pre-dredge survey areas of eelgrass beds to avoid those located adjacent to the project site and to review proper construction techniques. A training log shall be maintained by the project marine biologist and shall be submitted monthly to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), who shall verify implementation of this measure.

Mitigation Measure 4.5.4: The contractor shall ensure that throughout the duration of dredge and clean sand cover placement activities, project-related barges and work vessels operating in areas where eelgrass beds exist shall be operated in a manner to ensure that eelgrass beds are not impacted through grounding, propeller damage, or other activities that may disturb the seafloor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels. The project marine biologist shall periodically confirm that these measures are implemented and shall submit a monthly monitoring report to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.5.5: The contractor shall ensure that throughout the duration of dredge and clean sand cover placement activities, barges and work vessels shall be operated in a manner to ensure that sea turtles and marine mammals are not injured or harassed through excessive vessel speed or propeller damage. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels. The project marine biologist shall periodically confirm that these measures are implemented and shall submit a monthly monitoring report

to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board).

Mitigation Measure 4.5.6: The contractor shall ensure that construction crews and work vessel crews are briefed daily on the potential for sea turtles and marine mammals to be present and provided with identification characteristics of sea turtles, seals, sea lions, and dolphin. The project marine biologist shall periodically confirm that this measure is implemented and include verification in a monthly monitoring report.

Mitigation Measure 4.5.7: The contractor shall ensure that all construction activity be temporarily stopped if a sea turtle or marine mammal is sighted within 100 meters of the construction zone until the sea turtle or marine mammal is safely outside the outer perimeter of project activities. The biological monitor, who will be on site periodically during dredging activities, shall have the authority to halt construction operation and shall determine when construction operations can proceed. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify implementation of this mitigation measure.

Mitigation Measure 4.5.8: The biological monitor shall prepare an incident report of any green sea turtle or marine mammal activity in the project area and shall inform the contractor to have his/her crews be aware of the potential for additional sightings. The report shall be provided within 24 hours to the California Department of Fish and Game (CDFG) and National Marine Fisheries Service (NMFS). In the event a sea turtle, pinniped, or cetacean is injured or killed as consequence of a collision, the vessel operator and the appointed project safety personnel shall be required to immediately notify the NMFS (Southwest Division) and shall submit a written, follow-up report within 24 hours of the incident. Any injured sea turtle or marine mammal shall be transported to an agency-approved treatment facility. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify implementation of this mitigation measure.

Mitigation Measure 4.5.9: A qualified biologist familiar with the California least tern and other special-status seabirds and waterfowl shall be retained and be on site to assess the roosting and foraging behavior of

special-status seabirds and waterfowl at the Shipyard Sediment Site and selected staging area(s) immediately prior to and during the initial start-up phase of dredging and clean sand cover placement activities. Once it has been determined that activities are not adversely affecting seabirds and waterfowl, the biologist shall not be required to be on site continuously; however, monitoring shall be performed at least once per week (or more often if required by the resource agencies) to adequately assess whether substantial adverse impacts to special-status seabirds and waterfowl are resulting from project activities (e.g., disrupting nesting or foraging activities, harassing roosting birds). The biologist shall be present during either of the selected dredge scheduling options. In the event of an imminent threat to California least tern and/or other special-status species, the monitor shall immediately contact the contractor's construction manager. In the event the construction manager/contractor is not available, the monitor shall have the authority to redirect or halt construction activities if determined to be necessary. The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) shall verify implementation of this mitigation measure.

Mitigation Measure 4.5.10: If Staging Area 5 is selected, prior to initiation of dredging and during final design, the contractor shall endeavor to restrict dewatering and treatment activities to within the western and northern portions of the staging area to the extent feasible. To the extent practicable, activities shall be conducted in locations where existing buildings obstruct sensitive habitat areas from noise sources. The staging area layout shall be submitted to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) (and to the resource agencies, if required) for review and approval.

Mitigation Measure 4.5.11: If Staging Area 5 is selected, the California Department of Fish and Game (CDFG) shall be notified not less than 30 days in advance and shall be given the opportunity to provide recommended measures to minimize impacts from increased noise and human activity to species in the Sweetwater Marsh Unit of the San Diego Bay National Wildlife Refuge (NWR). All agency-recommended measures (or agency-approved substitute measures, if recommended measures are infeasible) shall be implemented throughout the duration of project

activities in Staging Area 5. The biological monitor shall inspect the site at least every 2 weeks during project activities that are conducted during the nesting season (conservatively February 1 through August 31) and shall report monthly to the State Water Resources Control Board (State Water Board).

4.5.5 Cumulative Impacts

The evaluation of potential cumulative impacts of this project with other projects in and around San Diego Bay is the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Projects identified by the Port of San Diego are discussed in Chapter 4.0 of this PEIR, but are not located adjacent to the project site or proposed staging areas and therefore are not expected to result in cumulative effects to the same populations of species that would be affected by the proposed project. The INRMP provides a cumulative context for dredging activities within San Diego Bay, and states that the historical volume of material dredged from the bay over the years is estimated to be between 180 and 190 million cubic yards (mcy). Most of the material was dredged prior to 1970. The San Diego Water Board has approval authority over dredging activities pursuant to section 401 of the CWA.

The INRMP outlines specific concerns related to cumulative effects of all types of activities within San Diego Bay, as follows:

- As in other ecosystems, significant piecemeal habitat loss and fragmentation continues in San Diego Bay, and species continue to be listed, despite the intent of cumulative effects analysis under National Environmental Policy Act (NEPA) and other laws.
- Certain habitat losses are so severe in San Diego Bay that the remaining fragments have become increasingly more precious. The cumulative effect of additional loss would be the deciding factor in determination of a significant impact, even though the project footprint itself may be small. However, there traditionally has been little documentation available to support a determination.
- Despite the obligation of agencies to quantify the effects of projects from a cumulative perspective, we are technically unable to do this because it entails a need to quantify connections among species and among habitats, and between the proposed project and all past, present, and reasonably foreseeable future actions at a site.
- There is no mechanism to ensure the quality of discussion on cumulative effects in environmental documents, especially for projects that are small but that are repeated on a wide scale. There is no way to identify at what point a loss becomes significant and at what scale of analysis.
- Incomplete or inadequate information sharing among agencies makes it difficult for project proponents to summarize past actions.

Impacts related to habitat loss are discussed further below. Habitat fragmentation is not expected to occur because the project would not result in permanent habitat loss, occurs on the periphery of the bay, and would not bisect most habitat types. Impacts to eelgrass beds could cause local fragmentation of the eelgrass community; however, the mitigation measures described above will ensure that the replacement eelgrass habitat is sufficiently interconnected to replace existing functions and values. Quantification of the intricate connections among species and habitats is beyond the scope of this document, particularly as the nature of the impacts to biological resources associated with the project is temporary, with full ecological recovery expected. The project is relatively small (compared to San Diego Bay overall) and is of a type that is periodically repeated on a wide scale (e.g., dredging activities occur throughout the bay periodically); therefore, it is not expected to substantially change the ecosystem composition (if anything, removal of toxic sediments is intended to improve ecological function) or result in permanent habitat loss.

Although there are no other sediment remediation dredging projects currently scheduled for implementation in San Diego Bay, the San Diego Water Board anticipates that several other dredging projects may occur in San Diego Bay over the next 10 years. The location and timing of future dredging and staging activity are not known. Mitigation Measure 4.2.14 in Section 4.2, Hydrology and Water Quality, requires that the San Diego Water Board coordinate future dredging activities, particularly those that may overlap temporarily. Maintenance dredging projects in San Diego Bay do not typically occur simultaneously, and combined with implementation of Mitigation Measure 4.2.14, dredging projects in San Diego Bay are not expected to contribute to direct cumulative biological impacts.

4.5.5.1 Loss of Foraging Habitat for Special-Status Species

Project-related activities will result in the temporary loss of marine invertebrates and fish within the area contained within the silt curtains (up to 17.5 acres), as well as impacts to eelgrass areas. This will reduce the available foraging area for local marine mammals (sea lion, bottlenose dolphin, harbor seal), marine reptiles (green sea turtle), fish-eating birds (including double-crested cormorant, California brown pelican, and to a lesser extent California least tern), and various fish species. Other projects in San Diego Bay that would affect foraging habitat in a similar manner would be limited to activities requiring silt curtains or otherwise excluding fish and marine invertebrates from areas, and would be primarily limited to other dredging operations. As discussed above, Mitigation Measure 4.2.14 requires that future dredging activities be coordinated to minimize temporary overlap. Therefore, no cumulatively considerable loss of foraging habitat is anticipated.

4.5.6 Significant Unavoidable Adverse Impacts

Provided all mitigation measures and agency requirements are implemented, and that the contractor complies with all applicable regulations (e.g., MBTA, California Fish and Game Code, MMPA), no significant and unavoidable adverse impacts to biological resources will occur as a result of project implementation.

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LSA

FIGURE 4.5-1

Shipyard Sediment Remediation Project

Bathymetry and Distribution of Eelgrass

SOURCE: DigitalGlobe (2008), Geosyntec (2011)

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LSA

LEGEND

- Project Location
- Potential Staging Areas
- California Least Tern Nesting Location
- San Diego Bay National Wildlife Refuge

N

0 3125 6250

FEET

FIGURE 4.5-2

Shipyard Sediment Remediation Project

California Least Tern Nesting Locations

SOURCE: Bing Maps (c.2008), Geosyntec (2011), USFWS (2011)

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4.6 AIR QUALITY

This section discusses the potential project effects on air quality based upon the *Air Quality Analysis* (LSA Associates, Inc., 2011) report prepared for the proposed Shipyard Sediment Remediation Project. This section describes the physical setting of the project area and the regulatory framework for air quality, evaluates potential short- and long-term air quality impacts associated with the proposed project, and identifies standard conditions and mitigation measures recommended to address potentially significant adverse air quality impacts of the proposed project. The *Air Quality Analysis* is provided in Appendix G of this Program Environmental Impact Report (PEIR).

4.6.1 Existing Setting

The project site is located within the San Diego Bay, an area within the San Diego Air Basin (SDAB) that includes the entire County of San Diego. Air quality regulation in the SDAB is administered by the San Diego Air Pollution Control District (APCD).

4.6.1.1 Regional Air Quality

The state of California and the federal government have established health-based ambient air quality standards (AAQS) for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), particulate matter less than 2.5 microns in size ($PM_{2.5}$), and lead. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These AAQS are designed to protect the health and welfare of the populace with a reasonable margin of safety.

The state has established episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage 1 to Stage 3. The California AAQS (CAAQS) are more stringent than national AAQS (NAAQS). Among the pollutants for which AAQS have been identified, O_3, $PM_{2.5}$, and PM_{10} are considered regional pollutants, while the other pollutants are considered to result in more localized effects.

4.6.1.2 Climate and Meteorology

Climate within the SDAB is influenced by its terrain and geographical location. The SDAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the western boundary, and high mountains surround the rest of SDAB. The region lies in the semi-permanent high pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes.

The annual average temperature varies little throughout SDAB, ranging from the low to mid-60s (measured in degrees Fahrenheit [°F]). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site monitoring temperature is the San Diego Airport Station.[1] The annual average maximum temperature recorded between 1914 and 2010 at this station is 69.9°F with the annual average minimum being 56.5°F. January is typically the coldest month in this area of the SDAB.

The majority of annual rainfall in the SDAB occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SDAB along the coastal side of the mountains. The climatological station closest to the site that monitors precipitation is the San Diego Airport Station. Average rainfall measured at this station between 1979 and 2010 varied from 2.03 inches in January to 0.78 inch or less between April and October, with an average annual total of 10.18 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

4.6.1.3 Air Pollution Constituents and Attainment Status

Table 4.6-1 summarizes the attainment status for each of the criteria pollutants from information developed by the California Air Resources Board (ARB). The *Air Quality Analysis* provides detailed descriptions of the following air pollutants: O_3, CO, oxides of nitrogen (NO_X) (including nitric oxide [NO] and NO_2), SO_2, PM_{10}, $PM_{2.5}$, lead, and reactive organic compounds (ROCs).

Table 4.6-1: Attainment Status of Criteria Pollutants in the San Diego Air Basin

Pollutant	State	Federal
O_3: 1 hour	Serious Nonattainment	N/A
O_3: 8 hour	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment/Unclassified
$PM_{2.5}$	Nonattainment	Attainment/Unclassified
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Unclassified
SO_2	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).

CO = carbon monoxide
N/A = Not Applicable
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SO_2 = sulfur dioxide

[1] Western Regional Climatic Center, website: http://wrcc.dri.edu, accessed 2011.

As identified in Table 4.6-1, the SDAB is designated as a serious nonattainment area for the state 1-hour O_3 AAQS. The entire SDAB has not exceeded the federal and state standards for NO_2 in the past 5 years. However, the SDAB is a nonattainment area for the state PM_{10} and $PM_{2.5}$ AAQS but is in attainment for the federal PM_{10} and $PM_{2.5}$ AAQS. For CO, SO_2, and lead, the SDAB has been designated as achieving attainment at both the state and federal levels.

4.6.1.4 Local Air Quality

The San Diego APCD, together with the ARB, maintains ambient air quality monitoring stations in the SDAB. The air quality monitoring station closest to the site is the San Diego-Beardsley Street Station, which monitors all criteria pollutants. The San Diego-Beardsley Street Station is located at 1110 Beardsley Street in the City of San Diego. Specifically, the monitoring station is located in the western corner of the Main Street parking lot for Perkins Elementary School. This monitoring station characterizes the air quality representative of the ambient air quality in the project area[1] and is fairly well centered in the heart of the Downtown/South Bay industrial zone, being exposed to emissions (depending upon wind direction) from Interstate 5 (I-5), Interstate 805 (I-805), State Route 15 (SR-15), State Route 94 (SR-94), Petco Park, downtown San Diego, Lindbergh Field, North Island Naval Air Station, 10th Avenue Marine Terminal, 32nd Street Marine Terminal, the shipyards, train yards, and harbor ship traffic.

The ambient air quality data in Table 4.6-2 indicates that CO, NO_2, and SO_2 levels are consistently below the relevant state and federal standards in the project vicinity. Ozone and PM_{10} levels exceed state standards while $PM_{2.5}$ levels exceeded state and federal standards.

4.6.2 Regulatory Setting

4.6.2.1 Federal Regulations and Standards

Clean Air Act. Pursuant to the federal Clean Air Act (CAA) of 1970, the United States Environmental Protection Agency (U.S. EPA) established NAAQS. The NAAQS were established for six major pollutants termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and state governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health. The NAAQS are listed in Table 4.6-2 while the attainment/nonattainment status of the NAAQS for the criteria pollutants in the SDAB were previously identified in Table 4.6-1.

[1] *Shipyard Sediment Project Air Quality Analysis* (LSA Associates Inc., 2011).

Table 4.6-2: Ambient Air Quality in Project Vicinity

Pollutant	Standard	2007	2008	2009
Carbon Monoxide				
Max 1-hr concentration (ppm)		4.4	3.1	ND
No. days exceeded: State	> 20 ppm/1-hr	0	0	ND
Federal	> 35 ppm/1-hr	0	0	ND
Max 8-hr concentration (ppm)		3.01	2.60	2.77
No. days exceeded: State	9 ppm/8-hr	0	0	0
Federal	9 ppm/8-hr	0	0	0
Ozone				
Max 1-hr concentration (ppm)		0.087	0.087	0.085
No. days exceeded: State	> 0.09 ppm/1-hr	0	0	0
Max 8-hr concentration (ppm)		0.073	0.073	0.063
No. days exceeded: State	> 0.07 ppm/8-hr	1	1	0
Federal	> 0.08 ppm/8-hr	0	0	0
Particulates (PM_{10})				
Max 24-hr concentration (µg/m3)		111	59	60
No. days exceeded: State	> 50 $\mu g/m^3$/24-hr	4	4	3
Federal	> 150 $\mu g/m^3$/24-hr	0	0	0
Annual Arithmetic Average (µg/m3)		31.2	29.3	29.4
Exceeded: State	> 20 $\mu g/m^3$ ann. arth. avg.	Yes	Yes	Yes
Particulates ($PM_{2.5}$)				
Max 24-hr concentration (µg/m3)		69.6	42.0	52.1
No. days exceeded: Federal	> 65 $\mu g/m^3$/24-hr	8	3	3
Annual Arithmetic Average (µg/m3)		13	13	12
Exceeded: State	> 12 $\mu g/m^3$ ann. arth. avg.	Yes	Yes	No
Federal	> 15 $\mu g/m^3$ ann. arth. avg.	No	No	No
Nitrogen Dioxide				
Max 1-hr concentration (ppm)		0.098	0.091	0.078
No. days exceeded: State	> 0.25 ppm/1-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.018	0.019	0.017
	State: > 0.030 ppm	No	No	No
Exceeded for the year:	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide				
Max 24-hr concentration (ppm)		0.006	0.007	0.006
No. days exceeded: State	> 0.04 ppm/24-hr	0	0	0
Federal	> 0.14 ppm/24-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.002	0.003	0.001
Exceeded: Federal	> 0.030 ppm ann. arth. avg.	No	No	No

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).
$\mu g/m^3$ = micrograms of pollutant per cubic meter of air
ann. arth. avg. = annual arithmetic average
ND = No Data (there was insufficient or no data available to determine the value)
ppm = parts per million

The EPA established new national air quality standards for ground-level O_3 and $PM_{2.5}$ matter in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O_3 and particulate matter, was unconstitutional as an improper delegation of legislative authority to the U.S. EPA. On February 27, 2001, the U.S. Supreme Court upheld the way that the government sets air quality standards under the CAA. The Court unanimously rejected industry arguments that the U.S. EPA must consider financial cost as well as health benefits in writing standards. The Justices also rejected arguments that the U.S. EPA took too much lawmaking power from Congress when it set tougher standards for O_3 and soot in 1997. Nevertheless, the Court threw out the U.S. EPA policy for implementing new O_3 rules, stating that the U.S. EPA ignored a section of law that restricts its authority to enforce such rules.

In April 2003, the U.S. EPA was cleared by the White House Office of Management and Budget (OMB) to implement the 8-hour ground-level O_3 standard. The U.S. EPA issued the proposed rule implementing the 8-hour O_3 standard in April 2003. The U.S. EPA completed final 8-hour nonattainment status on April 15, 2004. The U.S. EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The U.S. EPA issued final designations on December 14, 2004.

4.6.2.2 State Regulations and Standards

Mulford-Carrell Act. The state of California began to set CAAQS in 1969 under the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Originally, there were no attainment deadlines for CAAQS; however, the California Clean Air Act (CCAA) of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the state to prepare attainment plans and proposed to classify each area on the basis of the submitted plan as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The U.S. EPA has designated the San Diego Association of Governments (SANDAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the SDAB. The SDAB is currently classified as a nonattainment area for three criteria pollutants.

4.6.2.3 Regional Air Quality Planning Framework

Lewis Air Quality Management Act. The 1976 Lewis Air Quality Management Act established the San Diego APCD and other air districts throughout the state. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state.

The ARB coordinates and oversees the state and federal air pollution control programs in California. It oversees activities of local air quality management agencies and is responsible for incorporating Air Quality Management Plans (AQMPs) for all the air basins in the state into a State Implementation Plan (SIP) for U.S. EPA approval. The ARB and local air districts maintain air quality monitoring stations throughout the state. Data collected at those stations is used by the ARB to classify air basins as attainment or nonattainment with respect to each pollutant and to monitor progress in attaining the applicable AAQS.

The San Diego APCD and SANDAG are responsible for formulating and implementing air quality plans for the SDAB. Regional air quality plans were adopted for the SDAB for 1979, 1982, 1989, 1991, 1994, 1997, 2001, and 2004. The SDAB 2009 Triennial Regional Air Quality Strategy (RAQS) Revision was adopted by the San Diego APCD on April 22, 2009.

4.6.3 Thresholds of Significance

The impact significance criteria used for this analysis are based primarily on Appendix G of the California Environmental Quality Act (CEQA) Guidelines (2011). The proposed project would be considered to result in a significant adverse air quality impact if it would:

Threshold 4.6.1: Conflict with or obstruct implementation of the applicable air quality plan?

Threshold 4.6.2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Threshold 4.6.3: 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Threshold 4.6.4: Expose sensitive receptors to substantial pollutant concentrations?

Threshold 4.6.5: Create objectionable odors affecting a substantial number of people?

The air quality assessment included estimating emissions associated with short-term construction and long-term operation of the proposed Shipyard Sediment Remediation Project. Criteria pollutants with regional impacts would be emitted by project-related vehicular trips during construction and maintenance of the project.

The net increase in pollutant emissions was used to assess the significance and impact on regional air quality as a result of the proposed project. This analysis also allows the local government to determine whether the proposed project will deter the region from achieving the goal of reducing pollutants in accordance with the AQMP in order to comply with the federal and state AAQS.

For the health risk assessment (HRA), a screening-level single pathway analysis was conducted, analyzing the inhalation pathway. This technique was chosen as recommended in the Office of Environmental Health and Hazard Assessment (OEHHA) Air Toxic Hot Spots Program Risk Assessment Guidelines (August 2003), Appendix D, "Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Vehicles." For risk assessment procedures, the OEHHA specifies that the surrogate for whole diesel exhaust is diesel particulate.

In accordance with the OEHHA revised HRA guidelines (specifically, the OEHHA Technical Support Document (TSD) for Cancer Potency Factors, May 2009), calculation of cancer risk estimates should also incorporate age sensitivity factors (ASFs). The revised TSD for Cancer Potency Factors provides updated calculation procedures used to consider the increased susceptibility of infants and children to carcinogens, as compared to adults. The updated calculation procedure includes the use of age-specific weighting factors in calculating cancer risks from exposures of infants, children, and adolescents to reflect their anticipated special sensitivity to carcinogens. OEHHA recommends weighting cancer risk by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures that occur from 2 years through 15 years of age. These weighting factors should be applied to all carcinogens. For estimating cancer risk for residential receptors, the incorporation of ASFs results in a cancer risk adjustment factor (CRAF) of 1.7.

The project-related vehicle emissions were characterized for the HRA analysis. Once hauling of the dried dredged material commences, it is anticipated that there would be a total of 100 truck trips per day, regardless of which staging area is selected. Even though these trucks could be of various sizes, it was assumed for the HRA that these haul trucks were all the type of truck that resulted in the greatest exhaust emissions and highest health risk levels. The ARB model, EMFAC2007, was used to determine diesel truck PM_{10} emission factors for the haul trucks. This HRA is examining long-term, 70-year carcinogenic and chronic effects. Because the HRA model only allows for a single emission rate for the entire period, a median set of emission factors for the 70-year period is typically used. However, to be conservative in this HRA, emission factors for existing trucks were used. Model receptors were placed in key locations along the truck haul routes to characterize the risk levels to all existing residents. Meteorological data representing the conditions at the project site were obtained using data from the San Diego Lindbergh Field meteorological monitoring station.

The San Diego APCD has not established guidelines on emissions thresholds for CEQA purposes. Therefore, the following thresholds established in the *City of San Diego California Environmental Quality Act Significance Determination Thresholds* (January 2011) (City Guidelines) were used. The thresholds listed in the City's Guidelines are based on San Diego APCD stationary source emission thresholds. The City of National City has not established air quality CEQA thresholds. Therefore, the San Diego thresholds were applied to the entire project site. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (U.S. EPA), these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

4.6.3.1 Thresholds for Construction Emissions

Based on the criteria set forth in the City Guidelines, a project would have a significant impact with regard to construction or operational emissions if it would exceed any of the following:

- 137 pounds per day (lbs/day) of volatile organic compounds (VOCs)
- 250 lbs/day of NO_X
- 250 lbs/day of oxides of sulfur (SO_X)
- 550 lbs/day of CO
- 100 lbs/day of PM_{10}

Projects in the SDAB with construction-related emissions that exceed any of these emissions thresholds are considered to result in significant short-term adverse air quality impacts under the City Guidelines.

4.6.3.2 Thresholds for Operational Emissions

Emission Thresholds for Pollutants with Regional Effects. Projects with operations-related air quality emissions that exceed any of the emissions thresholds listed for construction emissions are considered to result in significant adverse regional air quality impacts under the City Guidelines.

Local Microscale Concentration Standards. The significance of localized project impacts under CEQA depends on whether the ambient CO levels in the vicinity of the project site are above or below the state and federal CO AAQS. If ambient CO levels are below the CO AAQS, a project is considered to have a significant adverse localized air quality impact if project-related emissions result in an exceedance of one or more of these AAQS. If the ambient levels already exceed a state or federal AAQS, project-related air quality emissions are considered significant and adverse if they increase the 1-hour CO concentrations by

1.0 part per million (ppm) or more or 8-hour CO concentrations by 0.45 ppm or more. The applicable local emission concentration standards for CO are:

- California state 1-hour CO standard of 20.0 ppm; and/or
- California state 8-hour CO standard of 9.0 ppm.

4.6.3.3 Thresholds for Health Risk Assessments

For pollutants without defined significance standards or air contaminants not covered by the standard criteria cited above, the definition of substantial pollutant concentrations varies. For toxic air contaminants (TACs), "substantial" is taken to mean that the individual cancer risk exceeds a threshold considered to be a prudent risk management level. If best available control technology for toxics (T-BACT) has been applied, the individual cancer risk to the maximum exposed individual (MEI) must not exceed 10 in 1 million in order for an impact to be determined not to be significant.

Airborne impacts are also derived from materials considered to be a nuisance for which there may not be associated standards. Odors or the deposition of large-diameter dust particles outside the PM_{10} size range would be included in this category.

The following limits for maximum individual cancer risk (MICR), cancer burden, and the noncancer acute and chronic hazard index (HI) from project emissions of TACs are considered appropriate for use in determining the health risk for projects in the SDAB:

- **Maximum Individual Cancer Risk:** MICR is the estimated probability of an MEI contracting cancer as a result of exposure to TACs over a period of 70 years for residential and 40 years for worker receptor locations. The MICR calculations include multipathway consideration when applicable.

  The cumulative increase in MICR that is the sum of the calculated MICR values for all TACs emitted from the project would be considered significant if it would result in an increased MICR greater than 10 in 1 million (1.0×10^{-5}) at any sensitive receptor location, assuming the project is constructed with T-BACT.
- **Chronic Hazard Index:** Chronic HI is the ratio of the estimated long-term level of exposure to a TAC for a potential MEI to its chronic reference exposure level. The chronic HI calculations include multipathway consideration when applicable.

  The project would be considered significant if the cumulative increase in total chronic HI for any target organ system due to total emissions from the project would exceed 1.0 at any receptor location.
- **Acute Hazard Index:** Acute HI is the ratio of the estimated maximum 1-hour concentration of a TAC for a potential MEI to its acute reference exposure level.

The project would be considered significant if the cumulative increase in total acute HI for any target organ system due to total emissions from the project would exceed 1.0 at any receptor location.

4.6.4 Impacts and Mitigation

The Initial Study (IS) did not eliminate any of the thresholds identified above from further analysis in the PEIR. The IS noted that an Authority to Construct and a Permit to Operate from the San Diego APCD may be necessary However, it is anticipated that the project will utilize on- and off-road equipment that is regulated by the ARB; therefore, it is not anticipated at this time that APCD permits will be required. The IS further notes that an individual dredging vessel may be registered with the ARB and would not require a specific air quality permit for this project.

4.6.4.1 Less Than Significant Impacts

Regional Air Quality Strategy. A regional AQMP describes air pollution control strategies to be taken by counties or regions classified as nonattainment areas. The San Diego APCD has developed the 2009 San Diego RAQS to bring the area into compliance with the requirements of federal and state air quality standards. CEQA requires that certain proposed projects be analyzed for consistency with the air quality plan. For a project to be consistent with the RAQS adopted by the San Diego APCD, the pollutants emitted from the project should not exceed the daily threshold or cause a significant impact on air quality, or the project must already have been included in the RAQS projection. However, if feasible mitigation measures are implemented and shown to reduce the impact level from significant to less than significant, a project may be deemed consistent with the air quality plan. The RAQS uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Since the RAQS is based on local General Plans, projects that are deemed consistent with the General Plan are found to be consistent with the air quality plan. The proposed project is a short-term remedial dredge-and-haul project that would not change existing land uses and would not result in population growth. As a short-term environmental cleanup project, the remedial dredge activities do not conflict with the City of San Diego or National City General Plans. In addition, the proposed project would not result in any increase in long-term regional air quality emissions. Although the proposed project would exceed the construction threshold for NO_X, the proposed project does not obstruct implementation of the RAQS. Since the Shipyard Sediment Remediation Project will not conflict with the RAQS, the proposed project would have a less than significant impact in regard to Threshold 4.6.1.

Stationary and Mobile Sources. Long-term air emission impacts are associated with changes in the permanent use of a project site where those changes would substantially increase emissions from on-site stationary and/or off-site mobile emissions sources.

Stationary source emissions include emissions associated with electricity consumption and natural gas usage. Mobile source emissions would result from vehicle trips associated with the proposed project. The proposed Shipyard Sediment Remediation Project would not result in any substantive changes in long-term on-site stationary sources as described in Section 3.0, Project Description. The project would also result in no long-term changes to off-site vehicle trips as discussed in Section 4.1, Transportation and Circulation. Therefore, no long-term mobile or stationary emissions were calculated for the proposed project, and the operation of the proposed project would result in a less than significant impact related to stationary and mobile source emissions (Threshold 4.6.2).

Fugitive Dust. Fugitive dust emissions are generally associated with land clearing, exposure, and cut-and-fill operations. Because the majority of construction activities related to the Shipyard Sediment Remediation Project involve the dredging, handling, and removal of wet material, little fugitive dust is anticipated to be generated. However, small amounts of fugitive dust could be generated as construction equipment or trucks travel into, out of, and on the construction site and during the pad construction in the staging areas (if necessary). Fugitive dust is qualified as particles lifted into the ambient air caused by man-made and natural activities such as the movement of soil, vehicles, equipment, blasting, and wind. This excludes particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines; from portable brazing, soldering, or welding equipment; and from pile drivers. Fugitive dust is included in the larger category of particulate matter (PM). Particulate matter includes the solid particles and liquid droplets suspended in the air. Sources of particulate matter include smokestacks and vehicle exhaust, but the largest single source is unpaved roads.

As identified in Tables 4.6-3 and 4.6-4, emissions of particulate matter (PM_{10} and $PM_{2.5}$) generated during dredging and dewatering activities will be relatively small and will not exceed the thresholds of significance for particulate matter. Therefore, construction activities associated with the project would result in less than significant adverse impacts related to PM_{10} and $PM_{2.5}$ and therefore fugitive dust as well.

Health Risk Assessment. An HRA is a process used to estimate the increased risk of health problems in people who are exposed to toxic substances. In this instance, an HRA was performed for the proposed project due to the close proximity of residents to the proposed truck hauling routes. The exposure to diesel-powered haul trucks could potentially result in a significant exposure of air pollutants to residents located along the proposed truck hauling routes. The only TAC known to be released from the proposed dredging and hauling operations in potentially significant quantities is contained in the exhaust of project-related haul trucks. For the purposes of an HRA, short-term emissions are of concern for analyzing acute health impacts, and long-term emissions are of concern for analyzing chronic and carcinogenic health impacts.

Table 4.6-3: Daily Construction Emissions by Phase (lbs/day)

Phase	CO	ROCs	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
Debris and Pile Removal	53.8	8.2	148.4	5.2	5.4	4.7	10,846.8
Dredging of Project Site	70.0	14.6	**340.7**	8.6	11.3	10.3	15,171.9
Landside Staging Area, Pad Construction	83.2	14.3	163.8	20.3	8.7	7.6	14,045.8
Landside Staging Area, Operations	168.6	22.4	**333.8**	7.7	12.6	11.0	36,201.1
Covering of Sediment Near Structure[1]	30.9	5.5	105.2	3.9	3.9	3.5	5,747.9
San Diego Emissions Thresholds	**550**	**137**	**250**	**250**	**100**	**N/A**	**N/A**
Exceed Significance Threshold?	NO	NO	**YES**	NO	NO	N/A	N/A

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).
[1] This includes the following equipment: operational barge containing stone slingers, hoppers, and conveyors; material barge to deliver cover material, tugs, stone slinger truck.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
N/A = Not Applicable (no threshold has been established)
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROCs = reactive organic compounds
SO_X = oxides of sulfur

Table 4.6-4: Peak Daily Construction Emissions (lbs/day)

Phase	CO	ROCs	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
Pad Construction	83.2	14.3	163.8	20.3	8.7	7.6	14,045.8
Dredging Operations	323.3	50.7	**928.1**	25.4	33.2	29.5	67,967.7
San Diego Emissions Thresholds	**550**	**137**	**250**	**250**	**100**	**N/A**	**N/A**
Exceed Significance Threshold?	NO	NO	**YES**	NO	NO	NO	N/A

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
N/A = Not Applicable (no threshold has been established)
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROCs = reactive organic compounds
SO_X = oxides of sulfur

As identified in the *Air Quality Analysis*, once hauling of the dried dredged material commences, it is anticipated there would be a total of 100 truck trips per day, regardless of which staging area is selected. Even though these trucks could be of various sizes, it was

assumed for the HRA that these trucks were all the type of truck that resulted in the greatest exhaust emissions and highest health risk levels.

For the purposes of this analysis, three different truck haul routes were modeled: (1) for Staging Areas 1 through 4, as 8 discrete sources located along 28th Street and Boston Avenue for access to I-5; (2) also for Staging Areas 1 through 4, as 12 discrete sources located along Harbor Drive and Civic Center Drive; and (3) for Staging Area 5, as 11 discrete sources located along Bay Marina Drive and 32nd Street for access to I-5.

The results for carcinogenic and chronic impacts associated with diesel-powered haul trucks are identified for each truck route in Table 4.6-5 through Table 4.6-7.

Table 4.6-5: Health Risk Levels from Haul Traffic Using 28th Street and Boston Avenue Route

Risk Category	Carcinogenic Inhalation Health Risk with CRAF	Chronic Inhalation Health Index	Acute Inhalation Health Index
70-Year Residential Risks	0.49 in 1 million	1.79E-04	2.22E-07
Threshold	**10 in 1 million**	**1**	**1**

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).
CRAF = cancer risk adjustment factor

Table 4.6-6: Health Risk Levels from Haul Traffic Using Harbor Drive and Civic Center Drive Route

Risk Category	Carcinogenic Inhalation Health Risk with CRAF	Chronic Inhalation Health Index	Acute Inhalation Health Index
70-Year Residential Risks	0.11 in 1 million	4.12E-05	9.50E-08
Threshold	**10 in 1 million**	**1**	**1**

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).
CRAF = cancer risk adjustment factor

Table 4.6-7: Health Risk Levels from Haul Traffic Using 32nd Street and Bay Marina Drive Route

Risk Category	Carcinogenic Inhalation Health Risk with CRAF	Chronic Inhalation Health Index	Acute Inhalation Health Index
70-Year Residential Risks	0.26 in 1 million	9.47E-05	1.49E-07
Threshold	**10 in 1 million**	**1**	**1**

Source: *Shipyard Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).
CRAF = cancer risk adjustment factor

As identified in Tables 4.6-5 through 4.6-7, results of the HRA analysis indicate that the proposed project's maximum contribution to the MEI inhalation cancer risk associated with living alongside one of the project's possible haul truck routes for 70 years would be 0.49 in 1 million. This is less than the threshold of 10 in 1 million identified. The maximum chronic inhalation HI for the proposed project would be 0.000179, which is well below the threshold of 1.0. Therefore, the potential for the hauling activities of the proposed project to result in a long-term chronic exposure would be less than significant.

Similar to the chronic inhalation HI standard, the acute inhalation HI standard for noncarcinogenic contaminants is 1.0. As identified in Tables 4.6-5 through 4.6-7, for all residents living alongside one of the project's possible haul truck routes, the maximum acute inhalation HI would be 0.000000222, which is well below the threshold of 1.0. Therefore, the potential for short-term acute exposure would be less than significant.

As identified in Tables 4.6-5 through 4.6-7, a 70-year outdoor exposure to haul truck emissions, including diesel particulate matter plus diesel exhaust organic gases (DPM), at the existing residential units alongside one of the project's possible haul truck routes would result in a maximum exposure of future residents to a risk level that is below the San Diego APCD criterion of significance for cancer health effects (i.e., 10 in 1 million). Key factors affecting HRA results include the distance from the roadway to the residences, truck traffic density, and wind direction and speed. The relatively low amounts of truck traffic and wind dispersion are two of the factors contributing to the low risk levels for the proposed project. Frequent winds from the west-northwest in the vicinity of the haul route prevent elevated concentrations of exhaust from accumulating for prolonged periods of time in the project area.

Historically, the San Diego APCD has used the criterion of 10 in 1 million to determine the risk for point sources such as emissions from industrial facilities. The San Diego APCD has the authority to regulate point-source emissions but not mobile-source emissions (e.g., vehicles on roadways). The exposure risks indicated in Tables 4.6-5 through 4.6-7 only include exposure to emissions from project-related haul truck traffic. The HRA results indicate an exposure to risk that would not exceed the San Diego APCD criterion for cancer, or chronic or acute health risks; therefore, it is unlikely that existing residents living alongside one of the project's possible haul truck routes would be exposed to a health risk that would be substantially greater than the average Californian would experience as a result of the proposed project. (The estimated carcinogenic health risk was 555 in 1 million for Chula Vista and 570 in 1 million for El Cajon in 2008, down from 901 and 965 in 1 million, respectively, in 1989.[1]) Impacts associated with this issue would be less than significant, and no mitigation is required.

[1] 2009 Air Toxics "Hot Spots" Program Report for San Diego County December 8, 2010.

Perkins Elementary School is located within 0.25 mile of Staging Areas 1 and 2. Significant health risks are not expected to result from the operation of equipment at the staging areas. Assuming the peak daily emissions shown in Table 4.6-4 occur continuously for 2.5 years (a conservative assumption) results in lifetime cancer risk levels below 1.5 in a million at Perkins Elementary School.

CO Hot-Spot Analysis. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time caused by traffic conditions. CO transport is extremely limited because CO disperses rapidly with distance from the emissions source (such as a motor vehicle) under normal meteorological conditions. Under certain extreme meteorological conditions, CO concentrations near a congested road or intersection may reach unhealthy levels thereby affecting local sensitive receptors such as residents, schoolchildren, the elderly, hospital patients, etc. Typically, high CO concentrations are associated with roads or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. In areas with high ambient CO concentrations, modeling of CO concentrations is recommended in determining a project's effect on local CO levels. Because the proposed Shipyard Sediment Remediation Project does not increase or expand capacity, it would likely result in either no change or only a minor change in off-site vehicle trips. Therefore, no substantial increase in CO contributions would occur in the project vicinity as a result of the proposed project. As a result, no CO hot spots are expected as a result of the project, and modeling of CO emissions associated with the proposed project is not necessary. The proposed Shipyard Sediment Remediation Project would result in less than significant localized impacts related to CO concentrations (Threshold 4.6.4).

4.6.4.2 Potentially Significant Impacts

Equipment Exhaust and Related Construction Activities. Implementation of the Shipyard Sediment Remediation Project is planned to occur in multiple phases. As identified in the *Air Quality Analysis* conducted for the proposed project, there are two scheduling options for completion of the remedial action. The first scheduling option is expected to take 2 to 2.5 years to complete. Under this option, the dredging operations would occur for 7 months of the year and would cease from April through August during the endangered California least tern breeding season. The second option is to implement the remedial plan with continuous dredging operations, which would be expected to take approximately 12.5 months to complete. This scenario assumes that the dewatering, solidification, and stockpiling of the materials would occur simultaneously and continuously with the dredging. Also assumed under this compressed schedule option is that dredging operations could proceed year-round, including during the breeding season of the endangered California least tern. Both schedule options are included in the analysis for the technical studies and PEIR.

For either scheduling option, implementation of the proposed project would occur in phases with multiple sub-phases. The maximum exhaust emissions generated within each of the

construction sub-phases are summarized in Table 4.6-3 while peak daily construction emissions are summarized in Table 4.6-4. As identified in Tables 4.6-3 and 4.6-4, construction equipment/vehicle emissions during the dredging and treatment of the sediment would result in NO_X emissions that would exceed the City-established daily emissions threshold for that pollutant. While adherence to San Diego APCD rules and regulations would reduce this impact, impacts associated with this issue would remain significant and adverse because the City-established daily threshold for NO_X would be exceeded.

The construction of the Shipyard Sediment Remediation Project must comply with San Diego APCD rules to reduce short-term air pollutant emissions generated during construction. The applicable San Diego APCD standards are included as mitigation measures for this project. Implementation of these construction techniques and standard practices would reduce NO_X emissions, which are a precursor to O_3. Compliance with these rules would reduce the short-term project air quality impacts associated with the generation of NO_X emissions in the area. In addition, Mitigation Measures 4.6.8 through 4.6.14 would also reduce the generation of NO_X emissions in the area through the use of retrofitted diesel-powered equipment, low-NO_X diesel fuel, and alternative fuel sources. However, there is no reasonable way to ensure that that retrofitted diesel-powered equipment, low-NO_X diesel fuel, and alternative fuel sources would be available during the construction period; therefore, it is not possible to quantify reductions in NO_X emissions that would result from implementation of Mitigation Measures 4.6.8 through 4.6.14. The other measures identified, on their own, would not reduce emissions of NO_X to below San Diego emission thresholds. Because no additional feasible mitigation is available to reduce construction-related NO_X emissions, this impact remains significant and unavoidable (Threshold 4.6.3).

Odors. The heavy-duty construction equipment used in the project area during construction would result in odor emissions. However, these odors would be limited to the time that construction equipment is operating during the construction period for the project. Adherence to the mitigation measures identified for equipment would reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment.

In addition to odors generated by diesel-powered construction equipment, odors from the dredged sediment would also be generated. During the dredging phases of the proposed project, the dredged materials will be dewatered and treated with a binding agent. While the dredge material is drying, the decomposition of organic matter as it is exposed to air may generate unpleasant odors. Therefore, the dredged material may result in odor impacts at nearby sensitive land uses. Adherence to Mitigation Measure 4.6.15 requires the application of a mixture of Simple Green and water to the dredged material. The addition of Simple Green to the dredged material accelerates the decomposition process and would have the overall result of shortening the duration of odor emissions. With implementation of this measure, and given the distance between the active areas within the potential Staging Areas

and the nearest sensitive receptors, it is anticipated that odor impacts would be reduced to less than significant with the adherence to identified mitigation measures (Threshold 4.6.5).

Environmental Justice. Since the proposed project has less than significant HRA effects, HRA effects to minority and low-income population along the identified haul routes would also be less than significant. NO_X impacts would affect the SDAB on a basin-wide level. As identified in Table 4.6-2, the closest monitoring station has not experienced NO_2 exceedances between 2002 and 2009. Therefore, the exceedance of the construction NO_X threshold is not expected to result in disproportionate impacts to the local population, including low-income and minority populations.

As previously discussed, the cumulative area for air quality impacts is the SDAB. The larger cumulative projects identified in Section 4.1, Transportation and Circulation, primarily affect residents residing within the SDAB. Furthermore, while there are residences along a portion of the proposed project haul route, there are no residences immediately adjacent to the mitigation haul route. The population of the City of San Diego and National City would be included in the potentially affected area as it pertains to air pollutant levels regardless of minority status or income level.

4.6.4.3 Mitigation Measures

The following mitigation measures have been identified to mitigate air quality impacts associated with the proposed project. Although fugitive dust impacts are not expected to exceed the construction emissions thresholds, adherence to San Diego APCD requirements is required of all development within the SDAB. Therefore, the incorporation of these requirements as Mitigation Measures 4.6.1 through 4.6.7 is designed to ensure implementation of these standard requirements/precautionary mitigation measures as part of the project's Mitigation Monitoring and Reporting Program (MMRP) (Chapter 7.0 of this PEIR). Mitigation Measures 4.6.8 through 4.8.14 are identified to reduce the levels of NO_X emissions during dredging and dewatering/treatment activities. Mitigation Measure 4.8.15 reduces odors by accelerating the decomposition of organic matter in the dredged sediment.

Mitigation Measure 4.6.1: The contractor shall be required by contract specifications to ensure that dredging, treatment, and haul activities are timed so as not to interfere with peak-hour traffic and to minimize obstruction of through traffic lanes adjacent to the site. If necessary, a flag person shall be retained by the construction supervisor to maintain safety adjacent to existing roadways. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of

dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.2: During dredging and dewatering activities, the contractor shall support and encourage ridesharing and transit incentives for the construction crew. These specifications shall be included in the proposed project's construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging.

Mitigation Measure 4.6.3: During dredging and dewatering activities, the contractor shall ensure that on-site vehicle speed shall be limited to 15 miles per hour (mph). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.4: During dredging and dewatering activities, the contractor shall ensure that all on-site roads are paved. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.5: During dredging and dewatering activities, the contractor shall adhere to San Diego Air Pollution Control District (APCD) Rule 55 to ensure that all material excavated or graded is sufficiently watered to prevent airborne dust from being visible beyond the property line. Watering with complete coverage, and/or surfactants shall be applied to stockpiles of dirt, inactive construction areas, and construction roads if and as necessary. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.6: Should the dredge material dry sufficiently to be considered dusty, the contractor shall ensure that all earthmoving activities cease during periods of high winds (i.e., greater than 25 mph averaged over 1 hour). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.7: During dredging and dewatering activities, the contractor shall ensure that all material transported off site is either sufficiently wet or securely covered to prevent excessive amounts of dust. In addition, per San Diego Air Pollution Control District (APCD) Rule 55, the construction contractor shall ensure that visible roadway dust from track-out/carry-out be minimized. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.8: The contractor shall be required by contract specifications to ensure that all diesel-powered equipment used are retrofitted with after-treatment products (e.g., engine catalysts) to the extent that they are readily available in the San Diego Air Basin (SDAB). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.9: The contractor shall be required by contract specifications to ensure that all heavy-duty diesel-powered equipment operating and refueling at the project site use low oxides of nitrogen (NO_X) diesel fuel to the extent that it is readily available and cost effective (up to 125 percent of the cost of California Air Resources Board [ARB] diesel) in the San Diego Air Basin (SDAB). (This does not apply to diesel-powered trucks traveling to and from the project site.) Contract specifications shall be included in the proposed project construction

documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.10: The contractor shall be required by contract specifications to ensure that alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) are utilized to the extent that the equipment is readily available and cost effective in the San Diego Air Basin (SDAB). Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.11: The contractor shall be required by contract specifications to ensure that construction equipment engines are maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.12: The contractor shall be required by contract specifications to ensure that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, is turned off when not in use for more than 5 minutes. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.13: The contractor shall be required by contract specifications to ensure that construction operations rely on the electricity infrastructure surrounding the construction site rather than

electrical generators powered by internal combustion engines to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.14: The contractor shall utilize alternative-fueled construction equipment to the maximum extent feasible. All diesel-powered construction equipment shall meet or exceed Tier III standards, or shall be equipped with ARB-verified oxidation catalysts and diesel particulate filter emission controls, using the greatest control efficiency for the specific category of equipment where feasible. The construction contractor shall demonstrate that these verified/certified technologies are available to be used at the time of project dredging and dewatering activities. These specifications shall be included in the proposed project's construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

Mitigation Measure 4.6.15: To accelerate the decomposition process and reduce odor impacts, the contractor shall apply a mixture of Simple Green and water (a ratio of 10:1) to the dredged material. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) prior to the initiation of dredging. The San Diego Water Board shall verify implementation of this measure.

4.6.5 Cumulative Impacts

The cumulative study area for air quality impacts is the SDAB. Construction of the project would contribute cumulatively to the local and regional air pollutants, together with other projects under construction. As previously identified, the project would result in significant construction-related air quality impacts pertaining to NO_X emissions. San Diego Unified Port District (Port District) projects that could be under construction at the same time as the proposed project are listed in Section 4.1, Transportation and Circulation, of this PEIR.

Should multiple projects be underway at the same time, it is anticipated that the additional NO_X emissions could result in significant cumulative air quality impacts.

The proposed project would also contribute to adverse cumulative air quality impacts because construction activity would result in additional emissions of pollutants, which may exacerbate ambient levels currently in excess of applicable NAAQS or CAAQS for O_3 (because NO_X is a precursor to O_3). The proposed project, in conjunction with other planned projects, would contribute to the existing nonattainment status. Therefore, the project-level and cumulative short-term construction impacts of the proposed project would remain significant and unavoidable.

Odors resulting from the project's treatment of decomposing sediments could have short-term but significant odor impacts on adjacent park uses. These impacts are reduced to less than significant with mitigation incorporated. Because no other similar odor-producing projects are anticipated in the immediate area, odor impacts are not considered cumulatively significant.

The HRA results indicate that exposure to emissions from project-related haul truck traffic would not exceed the San Diego APCD criterion for cancer or chronic or acute health risks. The risk levels associated with the proposed project are well below the established thresholds. In addition, the low amount of project truck traffic and the temporary nature of construction limit the resulting health risk. Therefore, the proposed project's incremental contribution to HRA impacts is less than significant.

The project would not result in increases in long-term operational emissions because the project does not create any traffic once construction activities have been completed. The project would not create total (vehicular and stationary) daily emissions that exceed the daily emissions thresholds established by the City of San Diego and City of National City. Therefore, the project would not contribute cumulatively to long-term local and regional air quality degradation.

4.6.6 Significant Unavoidable Adverse Impacts

The proposed Shipyard Sediment Remediation Project would result in significant unavoidable construction-related adverse air quality impacts of NO_X (which is a precursor to O_3) emissions, even after the implementation of feasible standard conditions and mitigation measures. While the adherence to San Diego APCD rules and regulations and identified mitigation measures would reduce this impact, it would remain significant and adverse because the City daily threshold for NO_X would be exceeded. There are no other feasible mitigation measures that are available to offset this significant impact.

Construction activities for the Shipyard Sediment Remediation Project would also contribute to construction-related adverse cumulative air quality impacts because the SDAB is presently

in nonattainment for O_3, and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3. Therefore, the cumulative construction impacts of the proposed project would remain significant.

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4.7 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

This section defines climate change and greenhouse gases (GHG) and presents the current legislation and programs addressing climate change in California. The section also quantifies existing and potential future GHG emissions associated with the proposed project and recommends mitigation measures that could be implemented to reduce those emissions. The analysis provided for this section is based on the *Air Quality Analysis* (LSA Associates, Inc., 2011) report prepared for the proposed Shipyard Sediment Remediation Project. The *Air Quality Analysis* report is provided in Appendix G of this Draft Program Environmental Impact Report (PEIR).

4.7.1 Existing Setting

4.7.1.1 Global Climate Change

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (such as precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

GCC is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose 0.6 ±0.2 degrees Celsius (°C) (1.1 ±0.4 degrees Fahrenheit [°F]) in the 20th century. Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind that lasts for decades or longer (United States Environmental Protection Agency [U.S. EPA], 2007). Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO_2) and other compounds, cumulatively termed GHGs.

The rate of warming over the last 50 years is almost double that over the last 100 years. The latest projections, based on state-of-the-art climate models, indicate that temperatures in California are expected to rise from 3°F to 10.5°F by the end of the century. The prevailing scientific opinion on climate change is that "most of the warming observed over the last

50 years is attributable to human activities." Increased amounts of CO_2 and other GHGs are the primary causes of the human-induced component of warming.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:

- CO_2
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)

For the purposes of this PEIR, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

Anticipated Changes to the Existing Environment as a Result of GCC. Potential effects from GCC may arise from temperature increases, climate-sensitive diseases, extreme weather events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates could experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

Additionally, according to the 2006 California Climate Action Team (CAT) Report, the following climate change effects, which are based on trends established by the United Nations Intergovernmental Panel on Climate Change (IPCC), can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply
- Increasing temperatures from 8°F to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days that ozone pollution levels are exceeded in most urban areas

- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures
- Increased electricity demand, particularly in the hot summer months
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors
- Higher sea levels and higher sea surface evaporation rates

Increases in temperature and a rise in sea levels may have implications for many bay habitats and natural processes. For example, eel grass beds may be affected because of changing water clarity, depth, and temperature. High tide refugia for avian species may be depleted, and there may be a loss of intertidal areas. Changes in water temperature affect mud temperatures, which has been correlated with the concentration of certain prey species and thus the availability of prey to shorebirds.

The project site is a relatively flat, low-lying developed coastal site that includes the waters of San Diego Bay, and which may be directly affected by the change in sea level. Sea level rise is anticipated to occur over an extended period of time, whereas the proposed project is expected to be implemented within the next several years.

4.7.2 Regulatory Setting

4.7.2.1 Federal Regulations and Standards

Energy Policy and Conservation Act. The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the United States would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic Safety Administration (NHTSA), which is part of the United States Department of Transportation (U.S. DOT), is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon (mpg). Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. The Corporate Average Fuel Economy (CAFE) program, administered by the U.S. EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The U.S. EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the U.S. DOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992. The Energy Policy Act of 1992 (EPAct 1992) was passed to reduce United States dependence on foreign petroleum and improve air quality. EPAct 1992 includes several parts that are intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct 1992 requires certain

federal, state, and local governments and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct 1992. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005. The Energy Policy Act of 2005 (EPAct 2005) includes provisions for renewed and expanded tax credits for electricity generated by qualified energy sources such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Federal Regulation of Climate Change. Climate change and GHG reduction are also concerns at the federal level; however, at this time, no federal legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. EPA to regulate GHG as a pollutant under the Clean Air Act (CAA) (*Massachusetts vs. Environmental Protection Agency et al.*, 549 U.S. 497 [2007]). The court ruled that GHG does fit within the CAA definition of a pollutant, and that the U.S. EPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

On September 30, 2009, the U.S. EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

> *Endangerment Finding:* The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.
>
> *Cause or Contribute Finding:* The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing U.S. EPA-proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the U.S. EPA and the NHTSA on September 15, 2009.[1]

On April 1, 2010, the U.S. EPA and the NHTSA announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The U.S. EPA is finalizing the first-ever national GHG emissions standards under the CAA, and NHTSA is finalizing CAFE standards under the Energy Policy and Conservation Act. The U.S. EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 mpg.

4.7.2.2 State Regulations and Standards

Assembly Bill 4420 (AB 4420). The State of California has been studying the impacts of climate change since 1988, when AB 4420 was approved. This legislation directed the California Energy Commission (CEC), in consultation with the California Air Resources Board (ARB) and other agencies, to study the implications of global warming on California's environment, economy, and water supply. The CEC was also directed to prepare and maintain the state's inventory of GHG emissions.

Assembly Bill 1493 (AB 1493). In 2002, Governor Grey Davis signed AB 1493, which required the ARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the State."

Executive Order S-3-05 (EO S-3-05). EO S-3-05, signed by Governor Schwarzenegger in 2005, proclaimed California vulnerable to the impacts of climate change. EO S-3-05 states that increased temperatures could reduce the Sierra Nevada snowpack, worsen California's air quality problems, and potentially cause a rise in sea levels. EO S-3-05 establishes total GHG emissions targets, including emissions reductions to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32 (AB 32). In September 2006, Governor Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. AB 32 directs the ARB to implement regulations for a cap on sources or categories of sources of GHG emissions. The bill requires

[1] http://www.epa.gov/climatechange/endangerment.html.

the ARB to develop regulations to reduce emissions with an enforcement mechanism to ensure that the reductions are achieved, and to disclose how it arrives at the cap. It also includes conditions to ensure businesses and consumers are not unfairly affected by reductions. AB 32 requires the ARB to:

- Adopt a list of discrete early action measures by July 1, 2007, that can be implemented before January 1, 2010;
- Establish a statewide GHG emissions cap for 2020 based on 1990 emissions, and adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;
- Indicate how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms, and other actions by January 1, 2009; and
- Adopt regulations by January 1, 2011, to achieve the maximum technologically feasible and cost-effective reductions in GHG, including provisions for using both market mechanisms and alternative compliance mechanisms.

AB 32 codifies the EO S-3-05 year 2020 goal by requiring that statewide GHG emissions be reduced to 1990 levels by the year 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be implemented no later than January 1, 2012. To effectively implement the cap, AB 32 directs the ARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels.

Senate Bill 1368 (SB 1368). In September 2006, Governor Arnold Schwarzenegger signed SB 1368, which calls for the adoption of a GHG performance standard for in-state and imported electricity generators to mitigate climate change. On January 25, 2007, the California Public Utilities Commission (CPUC) adopted an interim GHG emissions performance standard. This standard is a facility-based emissions standard requiring all new long-term commitments for baseload generation to serve California consumers with power plants that have emissions no greater than a combined-cycle gas turbine plant. The established level is 1,100 pounds of CO_2 per megawatt hour (MWh).

Senate Bill 97 (SB 97). SB 97 was approved on August 25, 2007, to address GHG analysis under the California Environmental Quality Act (CEQA). This legislation mandates that the Office of Planning and Research (OPR) prepare and submit guidelines to the California Resource Agency (CRA) for the mitigation of GHG emissions and their effects by July 1, 2009, and their adoption by January 1, 2010. This legislation does not provide for any guidance for nonexempted projects in the interim period between the passage of SB 97 and the adoption of guidelines by the OPR.

As directed by SB 97, the Natural Resources Agency adopted amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations (CCR). The amendments became effective on March 18, 2010. Proposed changes to the CEQA Guidelines included new questions in Appendix G regarding GHG emissions and major changes to the transportation/traffic checklist questions (Appendix A-3, Draft CEQA Guidelines changes). The amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations.

Senate Bill 375. SB 375, signed into law on October 1, 2008, is intended to enhance the ARB's ability to reach AB 32 goals by directing the ARB to develop regional GHG emissions reduction targets to be achieved within the automobile and light-truck sectors for 2020 and 2035. The ARB will work with California's 18 Metropolitan Planning Organizations (MPOs) to align their regional transportation, housing, and land use plans and prepare a "Sustainable Communities Strategy" to reduce the number of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its GHG reduction targets.

Additionally, SB 375 provides incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The bill exempts home builders from certain CEQA requirements if they build projects consistent with the new sustainable community strategies. It will also encourage the development of more alternative transportation options to promote healthy lifestyles and reduce traffic congestion.

4.7.2.3 Regional Regulations

Regional Transportation Plan/Sustainable Communities Strategy. In September, 2010, the ARB approved GHG reduction targets for the San Diego region in response to a requirement of SB 375 passed in 2008. The law also requires municipal planning organizations such as the San Diego Association of Governments (SANDAG) to include a Sustainable Communities Strategy (SCS) in their Long-Range Transportation Plans (LRTPs). The San Diego region will be required to reduce GHG emissions from cars and light trucks by 7 percent per capita by 2020 and 13 percent by 2035.

SANDAG has released the Draft 2050 Regional Transportation Plan (RTP), the first such plan in the state that includes an SCS. The Draft SCS is a comprehensive plan to guide new development and future transportation improvements in ways that reduce vehicle miles traveled (VMT) and cut per-capita emissions**.** The Draft SCS demonstrates how the development patterns and transportation network, policies, and programs included in SANDAG's regional plans can work together to achieve the GHG emission reduction targets

for cars and light trucks established by the ARB. The SCS, once approved, will guide regional policies and may be used by local governments to guide local plans and policies as well.

Sustainable Communities Strategy. The SCS is a new element of the RTP, as required by SB 375. SB 375 requires that MPOs prepare an SCS as a new element of their RTPs, along with the traditional policy, action, and financial requirements. The SANDAG Board of Directors released the Draft 2050 RTP, including the Draft Air Quality Conformity Determination (AQCD) and the SCS, at the April 22, 2011, Board meeting. The release of the Draft 2050 RTP begins the public comment period, which will extend through June 30, 2011.

The Draft 2050 RTP and its SCS seek to guide the San Diego region toward a more sustainable future by integrating land use, housing, and transportation planning to create communities that are more sustainable, walkable, transit-oriented, and compact. In accordance with SB 375, the building blocks of the Draft SCS include:

- A land use pattern that accommodates our region's future employment and housing needs, and protects sensitive habitats and resource areas;
- A transportation network of public transit, managed lanes, and highways, local streets, bikeways, and walkways built and maintained with available funds;
- Managing demands on our transportation system (also known as Transportation Demand Management or TDM) in a way that reduces or eliminates traffic congestion during peak periods of demand; and
- Innovative pricing policies and other measures designed to reduce vehicle miles traveled and traffic congestion during peak periods of demand. The key difference between past and current regional planning efforts is a sharper focus on reducing GHG emissions.[1]

2009 Regional Energy Strategy. In partnership with the CEC, SANDAG prepared the 2009 Regional Energy Strategy (RES), which includes goals and policy measures intended to save energy and increase the use of clean and renewable energy sources. Many of the measures identified in the RES would also reduce GHG emissions. The RES identifies the following strategies that SANDAG and local governments could help implement in order to help the region meet the goals for energy and climate change mitigation:

- Pursue a comprehensive building retrofit program to improve efficiency and install renewable energy systems.
- Create financing programs to pay for projects and improvements that save energy.

[1] http://www.sandag.org, accessed May 23, 2011.

- Utilize the SANDAG–San Diego Gas and Electric Company (SDG&E) Local Government Partnership funding award to help local government identify opportunities and implement energy savings at government facilities and throughout their communities.
- Support land use and transportation planning strategies that reduce energy use and GHG emissions.
- Support planning of electric charging and alternative fueling infrastructure.
- Support use of existing unused reclaimed water to decrease the amount of energy needed to meet the water needs of the San Diego region.

2009 Regional Alternative Fuels, Vehicles, and Infrastructure Report. SANDAG and the CEC developed a regional assessment of alternative transportation fuels, vehicles, and infrastructure that identifies and recommends regional and local government actions to increase the use of alternative fuels and vehicles in government fleets. The report includes recommendations for local governments and the region as a whole to help increase the use of alternative fuels and vehicles and to provide the necessary infrastructure to support alternative technologies.

4.7.2.4 Local Regulations

City of San Diego Climate Action Plan. On January 29, 2002, the San Diego City Council unanimously approved the San Diego Sustainable Community Program. Included in that program are:

- The City's GHG Emission Reduction Program, which sets a reduction target of 15 percent by 2010, using 1990 as a baseline;
- Establishment of a scientific *Ad Hoc* Advisory Committee to expand the GHG Emission Reduction Action Plan for the City organization and broaden the scope to community actions;
- Membership in the International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Protection (CCP) Campaign to reduce GHG emissions; and
- Charter membership in the California Climate Action Registry.

The City of San Diego Climate Action Plan also identifies existing policies, regulations, and standards that would reduce GHG emissions.

City of National City Draft Climate Action Plan. Implementation of the Draft Climate Action Plan (January 2011) will guide National City's actions to reduce its contribution to GCC and will support the state of California's ambitious emission reduction targets. The Climate Action Plan will also be utilized for tiering and streamlining review of future

development within National City pursuant to CEQA Guidelines CCR 15152 and 15183.5. The Climate Action Plan serves as the CEQA threshold of significance within the City for climate change by which all applicable developments within the City will be reviewed. National City has adopted a reduction target of 15 percent below 2005/2006 baseline emission levels by the year 2020, with additional reductions by the year 2030 for both community-wide and government operations. To reach this target, National City must reduce annual community-wide emissions by 119,279 metric tons of carbon dioxide equivalent (CO_2e) from 2020 business-as-usual (BAU) levels and government operations emissions must be reduced by 1,459 metric tons of CO_2e from 2020 BAU levels. The City of National City will strive to achieve additional reductions in GHG emissions by 2030.[1]

4.7.3 Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, climate change/GHG emissions impacts would occur if the proposed project would:

Threshold 4.7.1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Threshold 4.7.2: Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

The CEQA Guidelines were amended in March 2010 to include GHG emissions in the Appendix G checklist. The Notice of Preparation (NOP) for the proposed project was issued on November 30, 2009. GHG emissions were, therefore, not addressed in the NOP, and both CEQA thresholds identified above are addressed in the impact analysis contained in this PEIR.

4.7.4 Impacts and Mitigation

4.7.4.1 Less Than Significant Impacts

GHG Emissions. GCC may result in significant adverse effects to the environment that will be experienced worldwide, with some specific effects observed in California. AB 32 requires statewide GHG emissions reductions to 1990 levels by 2020. Although these statewide reductions are now mandated by law, no generally applicable GHG emission threshold has yet been established.

Pursuant to SB 97, the OPR is in the process of developing guidelines for analysis of the effects of GHG emissions. As part of this process, the OPR has asked ARB technical staff to recommend statewide interim thresholds of significance for GHGs. The ARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for

[1] http://www.ci.national-city.ca.us/index.aspx?page=548.

significance criteria related to industrial, commercial, and residential projects. However, although the ARB anticipated adopting the significance criteria in 2009 to allow coordination with OPR's efforts on GCC, no formal announcement of adoption has been made.[1] Currently, it appears that the ARB is deferring action on the adoption of final thresholds.

The methodology used in this PEIR to analyze the project's potential effect on global warming includes a calculation of GHG emissions. The purpose of calculating the emissions is for information purposes as there is no quantifiable emissions threshold. Rather, the project's incremental contribution to GCC would be considered cumulatively significant if, due to the size or nature of the proposed project, it would generate a substantial increase in GHG emissions relative to existing conditions.

The ARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act*. The proposed draft guidance generally describes three classes of common projects: industrial, commercial, and residential projects. For each type of project, the proposed draft guidance recommends that a two-pronged threshold be employed: one performance-based and one numerical. For performance standards, the draft guidance suggests that operations and construction of the project be evaluated for their consistency with applicable performance standards contained in plans designed to reduce GHG emissions and/or help meet the state's emission reduction objectives in AB 32. The proposed draft guidance contains two numerical standards:

1. First, the proposed draft guidance states that some small residential and commercial projects emitting 1,600 metric tons of CO_2e per year or less would clearly not interfere with achieving the state's emission reduction objectives in AB 32 (and EO S-03-05), and thus may be deemed categorically exempt from CEQA. Under this approach, projects emitting less than 1,600 metric tons of CO_2e per year would not require further analysis. The guidance does not state or imply that projects emitting more than 1,600 metric tons of CO_2e per year will necessarily result in a significant impact, although at this point the guidance has no precise numerical threshold for commercial and residential projects.
2. Second, for industrial projects, the proposed draft guidance proposes that projects that emit less than 7,000 metric tons of CO_2e per year may be considered less than significant, recognizing that AB 32 will continue to reduce or mitigate emissions from these sorts of projects over time.

[1] California, State of, 2008. California Air Resources Board (ARB). Preliminary Draft Staff Proposal: *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act*. October 24.

Thus, while state agencies and local air pollution control districts are currently working to develop CEQA quantitative thresholds of significance that would guide classification of impacts associated with GCC in CEQA documents, to date there is insufficient information to establish formal, permanent thresholds by which to classify projects with relatively small, incremental contributions to the State's total GHG emissions as cumulatively considerable or not.

Overall, the following activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O.
- **Electricity and Water Use:** Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy intensive. Approximately one-fifth of the electricity and one-third of the non-power plant natural gas consumed in the state are associated with water delivery, treatment, and use.[1]
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from fuel combustion in daily automobile and truck trips. CO_2 is the most significant GHG emitted by vehicles, but lesser amounts of CH_4 and N_2O are also emitted in vehicle exhaust.

GHG emissions generated by the proposed project would predominantly consist of CO_2. In comparison to criteria air pollutants such as ozone (O_3) and particulate matter less than 10 microns in size (PM_{10}), CO_2 emissions persist in the atmosphere for a substantially longer period of time. Construction activities (such as the dredging, treatment, and hauling of sediment) produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from on-site activities would vary daily as construction activity levels change.

[1] California Air Resources Board, 2010. Economic Sectors Portal. Website: www.arb.ca.gov/cc/ghgsectors/ghgsectors.htm. Accessed January 5, 2010.

The modeling conducted for the dredging and dewatering activities (see Appendix G of this PEIR) indicates that emissions of CO_2 would be as high as 34 tons per day (31 metric tons) during project construction.[1] Assuming 250 construction days per year, the project would generate up to 7,750 metric tons of CO_2 per year. The CO_2 emissions are essentially the same for all the potential staging areas and both schedule scenarios described in Chapter 3.0 because the amount of sediment is the same in each. As described in Section 4.7.4 above, the ARB-proposed draft guidance states that some small projects emitting 1,600 metric tons of CO_2e per year or less would clearly not interfere with achieving the state's emission reduction objectives in AB 32. Second, for industrial projects, the proposed draft guidance proposes that projects that emit less than 7,000 metric tons of CO_2e per year may be considered less than significant, recognizing that AB 32 will continue to reduce or mitigate emissions from these sorts of projects over time. While the significance conclusions of this analysis do not rely upon the proposed draft guidance, it is noted that the project's construction GHG emissions are a single-event contribution limited to a short period of time and therefore are not considered to impede or interfere with achieving the state's emission reduction objectives in AB 32.

GHG emissions are considered for their potential to contribute to GCC. The proposed project will result in short-term emissions associated with the use of construction equipment. There will be no ongoing increase in contribution to global warming because there are no permanent on-site stationary sources, and there is no ongoing increase in the number of vehicular trips coming to and from the project site. Therefore, the proposed project's contribution to GCC in the form of GHG emissions is less than significant. It is noted that mitigation measures listed in Section 4.6, Air Quality, of this PEIR that would reduce emission from construction-related vehicles and equipment would also reduce CO_2 emissions.

Conflict with Any Applicable Plans or Policies. The project's potential for generating a substantial increase in GHG emissions relative to existing conditions is based on a cooperative analysis of the project against the emissions reduction strategies contained in the California CAT Report to the Governor. If it is determined that the proposed project is compatible or consistent with the applicable CAT strategies, the project's cumulative impact on GCC is considered less than significant.

The California CAT developed a report that "proposes a path to achieve the Governor's targets that will build on voluntary actions of California businesses, local government and community actions, and state incentive and regulatory programs" (CA 2006). The report indicates that the strategies will reduce California's emissions to the levels proposed in EO S-3-05. The strategies that apply to the project are contained in Table 4.7-1.

[1] For the purpose of this PEIR, the term construction refers to the dredging, dewatering/treatment, and haul activity associated with the proposed project.

Table 4.7-1: Project Consistency with Climate Action Team Strategy

Climate Action Team Strategy	Consistent with Implementation of Strategy
Diesel Anti-Idling: In July 2004, the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	**No Conflict.** The proposed project does not include commercial uses. However, the proposed project would utilize diesel-fueled commercial haul trucks. The proposed project would be required to adhere to ARB requirements as it pertains to commercial motor vehicle idling. Therefore, the proposed project would not be in conflict with this strategy.
Hydrofluorocarbon Reduction: 1) Ban retail sale of HFCs in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration;. 4) Add refrigerant leaktightness to pass criteria for vehicular Inspection and Maintenance programs. 5) Enforce federal ban on releasing HFCs.	**No Conflict.** The proposed project is a sediment removal project and would not include commercial uses that would require HFC reductions.
Achieve 50 Percent Statewide Recycling Goal: Achieving the state's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	**No Conflict.** The proposed project does not include the development of urban uses that would generate a permanent source of waste. This strategy is aimed at reducing waste going into landfills as a result of the urban development. The proposed project would result in the removal and treatment of contaminated sediment from San Diego Bay as well as the disposal of treated sediment in a landfill. However, the proposed project does not involve the development of urban uses, and landfill disposal is limited to the remedial dredge and does not involve an ongoing contribution to landfills. Therefore, the project would not conflict with this strategy.
Urban Forestry: A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**No Conflict.** The proposed project consists of sediment removal activities and does not include the development of urban uses. Therefore, the project would not conflict with this policy.
Water Use Efficiency: Approximately 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	**No Conflict.** The project would involve sediment removal activities and the treatment of the sediment. It is anticipated that no permanent, ongoing source of water would be required.
Building Energy Efficiency Standards in Place and in Progress: PRC 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	**No Conflict.** The proposed project would not result in the construction of any buildings. Therefore, the proposed project would not conflict with this strategy.

Table 4.7-1: Project Consistency with Climate Action Team Strategy

Climate Action Team Strategy	Consistent with Implementation of Strategy
Appliance Energy Efficiency Standards in Place and in Progress: PRC 25402 authorizes the CEC to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	**No Conflict.** The proposed project consists of the removal of sediment from the San Diego Bay. The proposed project would not require any appliances as it would not result in the development of urban uses or construction of buildings.
Smart Land Use and Intelligent Transportation Systems: Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/ commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods, and services.	**No Conflict**. The proposed project consists of sediment removal activities and would not result in the development of urban uses subject to land use strategies.
Green Buildings Initiative: Green Building EO S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20% by the year 2015, as compared with 2003 levels.	**No Conflict.** The proposed project would not result in the construction of any buildings. Therefore, the proposed project would not conflict with this strategy.

Source: LSA Associates, Inc. (2011).

AB = Assembly Bill
ARB = California Air Resources Board
CEC = California Energy Commission
GHG = greenhouse gas
GWP = global warming potential
HFCs = hydrofluorocarbons
ITS = Intelligent Transportation System
PRC = Public Resources Code

In addition to the CAT strategies listed in Table 4.7-1, the City of San Diego has a number of existing policies, resolutions, and initiatives that serve to advance the reduction of GHG emissions. Table 4.7-2 provides the list of current policies and initiatives that have been identified in the City of San Diego's Climate Action Plan, and how the project is or is not consistent with these policies.

Potential Staging Area 5 is located in National City. The City of National City has identified a set of emission reduction measures in its Draft Climate Action Plan based on careful consideration of the emission reductions needed to achieve the reduction target, the distribution of emissions revealed in the emissions inventory, existing priorities and resources, and the potential costs and benefits of various potential emission reduction projects. The measures are divided into community-wide and government operations sectors. Community-wide measures are further divided into the following sectors: energy, transportation, solid waste, and water and wastewater. Table 4.7-3 provides a summary of the project's consistency with these community-wide measures. Since the proposed project is not considered to be a government operation, the government operations sector measures would not apply and are not included in Table 4.7-3.

Table 4.7-2: Project Consistency with Existing City of San Diego Policies, Initiatives, and Resolutions

Policy, Initiative, Resolution	Consistent with Implementation of Strategy
100-14 Procurement Policy - Recycled Products: The City of San Diego shall recycle waste products and purchase recycled products for use in the delivery of City services.	**No Conflict.** It is not anticipated that the proposed project would utilize City resources. Therefore, the proposed project would not conflict with this policy.
200-17 Alternative Fuels: ARB aims to reduce pollutant emissions by using reformulated gasoline, introducing low emissions vehicles, and implementing transportation control measures. The City plans to improve air quality by using alternative fuels, forming partnerships with other agencies promoting clean air activities, providing incentives to fuel efficient manufacturers, converting City fleet vehicles to cleaner alternative fuel, and developing local fuel resources.	**No Conflict.** The proposed project is a sediment removal project and would not utilize City resources. Therefore, the proposed project would not conflict with this policy.
200-05 Planting of Trees on City Streets: This policy establishes guidelines for the planting and removal of trees from City street rights-of-way.	**No Conflict.** The proposed project consists of dredging, dewatering, and haul activities and would not require the planting or removal of trees from the City rights-of-way. Therefore, the proposed project does not conflict with this policy.
200-09 Street Tree Plan – Central Business District: Continuity and uniformity of street tree planting in The Central Business District shall be established under this policy.	**No Conflict.** The proposed project consists of dredging, dewatering, and haul activities and would not require the planting or removal of trees from the City rights-of-way. Therefore, the proposed project does not conflict with this policy.
400-02 Biosolids Beneficial Use: This policy aims to diversify biosolid management in order to avoid the high costs of emergency operations.	**No Conflict.** The project would involve sediment removal activities. It is anticipated that no permanent source of biosolids would be generated. Therefore, the proposed project does not conflict with this policy.
400-09 Action Plan for City's Future Water Supply: In order to assure adequate water supply, the City of San Diego must develop water sources beyond imported Colorado River water.	**No Conflict.** The project would involve sediment removal activities and the treatment of the sediment. It is anticipated that no permanent, ongoing source of water would be required. Therefore, the proposed project does not conflict with this policy.
400-11 Action Plan for Implementation of Water Conservation Techniques: The City will identify and implement effective water conservation techniques. City buildings will be retrofitted with faucet flow restrictions. Landscape and irrigation practices that encourage low water demand in both private and City-owned sectors shall be promoted. The City will encourage efficient water softener usage, low water demand demonstration gardens, and water conservation home design awards.	**No Conflict.** The proposed project does not include the development of urban uses that would generate a permanent need for potable water. This policy is aimed at implementing effective water conservation techniques for landscape and urban uses. The proposed project would result in the removal and treatment of contaminated sediment from San Diego Bay. It is anticipated that no permanent, ongoing source of water would be required. Since the proposed project does not involve the development of urban uses, the project would not conflict with this policy.

Table 4.7-2: Project Consistency with Existing City of San Diego Policies, Initiatives, and Resolutions

Policy, Initiative, Resolution	Consistent with Implementation of Strategy
400-12 Implementation of Water Reclamation/ Reuse: Policies that encourage water reclamation and reuse are to be set up.	**No Conflict.** The proposed project would result in the removal of contaminated sediment from San Diego Bay. Decanted water from the sediment dewatering process is not suitable for reuse. Since the proposed project does not involve the development of urban uses, the project would not conflict with this policy.
600-14 Development Within Areas of Special Flood Hazard: The City Council plans to regulate development in areas prone to flooding in accordance with the Land Development Code.	**No Conflict.** The proposed project would not result in the development of urban uses within areas prone to flooding. Therefore, the proposed project would not conflict with this policy.
600-23 Open Space Preservation and Maintenance: The City will preserve open space by retention of City-owned lands, acquisition of fee titles, and/or acquisition of easements.	**No Conflict**. The proposed project consists of sediment removal activities and does not involve the conversion of city owned land. Therefore, the project would not conflict with this policy.
600-30 General Plan Amendments to Shift Land from Future Urbanizing to Planned Urbanizing Area: The purpose of this policy is to establish a guideline determining when lands reserved for future urbanization are to be made available for development.	**No Conflict**. The proposed project consists of sediment removal activities and does not include the development of urban uses. Therefore, the project would not conflict with this policy.
600-34 Transit Planning and Development: The City Council and the Metropolitan Transit Development Board shall plan for and implement development of improved public transit in the San Diego area.	**No Conflict.** The proposed project is a sediment dredging and dewatering project, and activity within the project area would cease once dredging and dewatering have concluded. Therefore, no permanent (operational) vehicle trips would be generated with implementation of the proposed project, and no public transit improvements would be required. The shipyards currently experience a high percentage of transit use by employees. The proposed project would not conflict with this policy.
600-39 Land Guidance: The City aims to direct growth into compact patterns of development, where living and working environments are within walkable distances.	**No Conflict**. The proposed project consists of sediment removal activities and does not involve the development of urban uses or changes to existing development patterns. Therefore, the project would not conflict with this policy.
700-20 San Diego Port Policy: The City of San Diego aims to provide a comprehensive guideline for the City Council concerning Port policy matters. These guidelines shall support the State of California Policy and Port Act Purposes. Policy goals consider sustainable land and economic development for the San Diego Bay. Current usage of the bay should not hinder the ability of future generations to use the bay. Long-term strategic plans that protect the water quality and wildlife assets of the bay shall be implemented.	**No Conflict.** The proposed project is the removal and treatment of contaminated sediment from San Diego Bay. The sediment remediation will protect water quality and support the ability of future generations to use the bay. Therefore, the project would not conflict with this policy.

Table 4.7-2: Project Consistency with Existing City of San Diego Policies, Initiatives, and Resolutions

Policy, Initiative, Resolution	Consistent with Implementation of Strategy
900-06 Solid Waste Recycling: The City's solid waste management system shall include a recycling component intended to reuse recoverable resources.	**No Conflict.** The proposed project is a sediment removal project. Although sediment would be removed and treated, it is not intended to be reused as a recoverable resource. Therefore, this policy would not be applicable to the proposed project.
900-14 Green Building: City buildings should be designed to minimize waste, provide healthy indoor air quality, support innovative and environmentally sustainable technologies, utilize native plants, and ensure the long-term health of the natural environment.	**No Conflict.** The proposed project is a sediment removal project and would not involve new development or buildings. Therefore, the project would not conflict with this policy.
900-18 Purchase of Energy Efficient Products: San Diego will purchase energy efficient products in order to lower GHG emissions, utility bills, and energy usage. Products must meet Energy Star specifications or be in the upper 25% of energy efficiency standards.	**No Conflict.** The project would involve sediment removal activities and the treatment of the sediment through dewatering activities, and would not require the installation of energy efficient products. Therefore, the proposed project would not conflict with this policy.
R-298412 50 MW Additional Renewable Power by 2013: In 2003, the City adopted a resolution to install 50 MW of additional renewable power at City facilities by 2013.	**No Conflict.** The proposed project is not a City facility. Therefore, the proposed project would not conflict with this policy.

Source: LSA Associates, Inc. (2011).
ARB = California Air Resources Board
GHG = greenhouse gas
MW = megawatts

Table 4.7-3: Project Consistency with City of National City Draft Climate Action Plan

Draft Climate Action Plan Community-Wide Reduction Strategy	Consistent with Implementation of Strategy
Measure A1.a.1: Encourage energy audits of existing buildings that inform building owners of their energy usage.	**No Conflict.** The proposed project is a sediment removal project and would not include buildings. Therefore, the project would not conflict with this strategy.
Measure A1.a.2: Encourage energy audits at the time of sale of commercial and residential properties and provide information about potential upgrades.	**No Conflict.** The proposed project does not include the development or operation of commercial or residential uses. Since the proposed project does not involve the development of urban uses, the project would not conflict with this strategy.
Measure A2.a.1: Foster land use intensity near, along with connectivity to, retail and employment centers and services to reduce VMT and increase the efficiency of delivery of services.	**No Conflict**. The proposed project consists of sediment removal activities and does not include the development of urban uses. Therefore, the project would not conflict with this strategy.
Measure A1.d.1: Support mechanisms that encourage installation of smart appliances that interface with smart meters and provide real-time electricity pricing information to consumers.	**No Conflict.** The project would involve sediment removal activities and would not require the installation of smart appliances. Therefore, the proposed project would not conflict with this strategy.
Measure A4.a.4: Work with the Sweetwater Authority to identify uses for existing unused reclaimed water to decrease the amount of water imported by the Sweetwater Authority.	**No Conflict.** The project would involve sediment removal activities and the treatment of the sediment. It is anticipated that no permanent, ongoing source of water would be required.
Measure A4.a.5: Identify and support programs for residential reuse of gray water to decrease the amount of energy needed to meet water needs.	**No Conflict.** The proposed project consists of the removal of sediment from San Diego Bay and does not involve the construction or operation of residential uses. Sediment decanted water is not suitable for reuse. Therefore, the proposed project would not conflict with this strategy.
Measure A4.a.1: Adopt water efficiency principles similar to the Ahwahnee Water Principles for Resource Efficient Land Use for new and existing residential and commercial developments.	**No Conflict.** The proposed project does not include the development or operation of new or existing residential and commercial uses. It is anticipated that no permanent, ongoing source of water would be required. Therefore, the proposed project would not conflict with this strategy.
Measure A3.a.5: Work with EDCO to encourage waste audits and waste reduction plans for existing and new commercial developments.	**No Conflict.** The proposed project does not include the development of urban uses that would require a permanent, ongoing source of waste. Since the proposed project does not involve the development of urban uses, the project would not conflict with this strategy.
Measure A2.b.5: Encourage employers to institute programs that provide financial incentives for commuters to reduce their vehicle trips and use alternative transportation modes like walking, bicycling, public transit, and carpooling often as an alternative to subsidized employee parking. a) **Parking Cash Out:** Commuters offered subsidized parking are also offered the	**No Conflict.** The proposed project is a sediment dredging and dewatering project, and activity within the project area would cease once dredging and dewatering have concluded. Therefore, no permanent vehicle trips would be generated with implementation of the proposed project. Mitigation in Section 4.6, Air Quality, promotes the use of ridesharing for workers, and the shipyards currently experience a high percentage of transit use by employees. As a result, the proposed project would not conflict with this strategy.

Table 4.7-3: Project Consistency with City of National City Draft Climate Action Plan

Draft Climate Action Plan Community-Wide Reduction Strategy	Consistent with Implementation of Strategy
cash equivalent if they use alternative travel modes. b) **Travel Allowances:** Financial payments provided to employees in lieu of parking subsidies. Commuters could use the travel allowance to pay for parking or for another travel mode. c) **Transit and Rideshare Benefits:** Free or discounted fares provided to employees. d) **Reduced Employee Parking Subsidies:** Commuters who drive would pay a portion or all of their parking costs.	
Measure A1.b.1: Encourage private development projects to exceed the energy efficiency requirements of Cal-Green by providing technical assistance, financial assistance and other incentives.	**No Conflict.** The proposed project would result in the removal of contaminated sediment from San Diego Bay. Since the proposed project is not a private development project and does not involve the development of urban uses, the project would not conflict with this strategy.
Measure A1.b.2: Encourage LEED certification for all new commercial and industrial buildings.	**No Conflict.** The proposed project does not include the construction or operation of commercial or industrial buildings. Since the proposed project does not involve the development of urban uses, LEED certification does not apply and the project would not conflict with this strategy.
Measure A1.a.4: Adopt an energy financing program to encourage energy efficiency retrofits in existing buildings.	**No Conflict.** The proposed project does not include the construction or continual operation of an existing building. The project would not conflict with this strategy.
Measure A2.b.3: Implement strategies that prioritize parking for HOVs—carpools, vanpools, and transit vehicles.	**No Conflict.** The proposed project would result in the removal of contaminated sediment from San Diego Bay. Should temporary parking be necessary, the San Diego Water Board will determine the feasibility of providing priority parking for HOVs. Therefore, the project would not conflict with this strategy.
Measure A4.a.2: Support landscape design educational programs to help residential and commercial customers install low water use landscaping, thereby reducing water-related energy use.	**No Conflict.** The proposed project does not include the development or operation of new or existing residential and commercial uses. Therefore, the proposed project would not conflict with this strategy.
Measure A2.e.1: Develop streamlined permitting requirements and standardized design guidelines and siting criteria for all types of electric charging stations.	**No Conflict.** The proposed project does not include the development or operation of any type of electric charging stations. Therefore, the proposed project would not conflict with this strategy.
Measure A1.c.1: Support the SDG&E feed-in tariff or other policies that will facilitate increased cost-effective installation of small-scale renewable energy systems like solar photovoltaics.	**No Conflict.** The proposed project does not include the development or operation of small-scale renewable energy systems. Therefore, the proposed project would not conflict with this strategy.

Table 4.7-3: Project Consistency with City of National City Draft Climate Action Plan

Draft Climate Action Plan Community-Wide Reduction Strategy	Consistent with Implementation of Strategy
Measure A1.c.2: Encourage local homebuilders to participate in the New Solar Homes Partnership to install solar photovoltaics on new homes.	**No Conflict.** The proposed project would not result in the construction of any residential buildings. Therefore, the proposed project would not conflict with this strategy.
Measure A2.b.2: Implement bicycle corridor improvements and supportive infrastructure.	**No Conflict.** The proposed project would result in the removal and treatment of contaminated sediment from San Diego Bay. Since the proposed project does not involve urban uses, the project would not conflict with this strategy.
Measure A1.a.3: Support increased use of solar water heating in residential, pool, and commercial uses.	**No Conflict.** The proposed project does not include the development or operation of new or existing residential and commercial uses. Therefore, the proposed project would not conflict with this strategy.
Measure A1.a.5: Provide low- or no-cost weatherization improvements for low-income households.	**No Conflict.** The proposed project would not result in the construction of any residential buildings. Therefore, the proposed project would not conflict with this strategy.
Measure A3.a.3: Educate owners and residents of multifamily housing about recycling requirements and opportunities.	**No Conflict.** The proposed project would not result in the construction of any residential buildings. Therefore, the proposed project would not conflict with this strategy.
Measure A3.a.4: Work with members of the RSWA to establish a curbside composting pilot project through the EDCO waste collection service.	**No Conflict.** The proposed project would result in the removal and treatment of contaminated sediment from San Diego Bay. Since the proposed project does not involve urban uses, the project would not conflict with this strategy.
Measure A3.a.6: Encourage EDCO to implement a restaurant food waste collection program.	**No Conflict.** The proposed project would not result in the construction of any commercial/restaurant uses. Therefore, the proposed project would not conflict with this strategy.
Measure A3.a.1: Implement a program to reduce, reuse, and recycle community construction and demolition waste.	**No Conflict.** The proposed project involves the dredging and dewatering of contaminated sediment. Since the sediment is contaminated, it cannot be recycled within the community.
Measure A3.a.2: Establish incentives for residents to participate in green waste recycling programs.	**No Conflict.** The proposed project would not result in the construction of any residential buildings. Therefore, the proposed project would not conflict with this strategy.
Measure A2.b.4: Encourage employers to institute telework programs and alternative work schedules to reduce commuting during peak hours.	**No Conflict.** The proposed project involves dredging and dewatering activities that are confined to certain hours of the day. Successful completion of the project depends on the implementation of a regular dredge, treatment, and haul schedule. Therefore, telework programs and alternative work schedules would not apply to the proposed project. Therefore, the proposed project would not conflict with this strategy.
Measure A4.a.3: Encourage water efficiency audits at point of sale for commercial and residential properties.	**No Conflict.** The project would involve sediment removal activities and the treatment of the sediment through dewatering activities. The project does not include commercial or residential development, and it is anticipated that no permanent, ongoing source of water would be required. Therefore, the proposed project would not conflict with this strategy.

Table 4.7-3: Project Consistency with City of National City Draft Climate Action Plan

Draft Climate Action Plan Community-Wide Reduction Strategy	Consistent with Implementation of Strategy
Measure A2.d.2: Continue to coordinate traffic signals to facilitate efficient traffic conditions.	**No Conflict.** The proposed project would not require changes to existing traffic signalization, and is consistent with this policy during the dredging and dewatering activities.
Measure A2.a.2: Reduce parking requirement in smart growth areas to discourage the use of single-occupancy vehicles.	**No Conflict.** The project would involve sediment removal activities and the treatment of the sediment through dewatering activities. The project does not include development of urban uses and would not require permanent parking facilities. Therefore, the proposed project would not conflict with this strategy.
Measure A2.b.1: Support the San Diego MTS in making performance and quality improvements to existing transit service in National City.	**No Conflict.** The proposed project is the dredging and dewatering of contaminated sediments in San Diego Bay. The shipyards currently experience a high percentage transit use by employees. This project is to be implemented by the City and MTS, and is not project specific. Therefore, the proposed project would not conflict with this strategy.
Measure A1.b.3: Increase enforcement of building energy requirements to reduce the rate of noncompliance.	**No Conflict.** The proposed project would not result in the construction of any buildings. Therefore, the proposed project would not conflict with this strategy.
Measure A2.d.1: Implement neighborhood traffic calming projects (e.g., replace stop-controlled intersections with roundabouts).	**No Conflict.** The proposed project would not result in the construction of any urban uses and would not require permanent neighborhood traffic calming improvements. Therefore, the proposed project would not conflict with this strategy.

Source: LSA Associates, Inc. (2011).
Cal-Green = California Green Building Standards Code
HOVs = high-occupancy vehicles
LEED = Leadership in Energy and Environmental Design
MTS = Metropolitan Transit Service
RSWA = Regional Solid Waste Association
San Diego Water Board = California Regional Water Quality Control Board, San Diego Region
SDG&E = San Diego Gas and Electric Company
VMT = vehicle miles traveled

As shown in Tables 4.7-1 through 4.7-3, the project would not conflict with the potential measures to bring California to the emission reduction targets based on California CAT strategies, the City of San Diego Climate Action Plan, and the City of National City Draft Climate Action Plan. Since the proposed project would not conflict with the strategies to reduce California's emissions to the levels proposed by EO S-3-05, impacts associated with this issue would be less than significant. Therefore, no mitigation measures are required.

Environmental Justice. GCC is a cumulative global rather than a geographically localized concern. The proposed project will result in short-term GHG emissions associated with the

use of construction equipment. Although there is a high percentage of low-income and minority population in the project study area, the proposed project GHG emissions represent a one-time (rather than ongoing) contribution to global warming that will not substantially or disproportionately affect low-income and minority populations in the vicinity of the project site.

4.7.5 Cumulative Impacts

GHG emissions are considered for their potential to contribute to GCC. The proposed project will result in short-term emissions associated with the use of construction equipment for dredging and treatment activities. There will be no ongoing increase in contribution to global warming because there are no permanent on-site stationary sources, and no ongoing increase in the number of vehicular trips coming to and from the project site. Therefore, the proposed project's contribution to GCC in the form of GHG emissions is less than cumulatively significant.

4.7.6 Significant Unavoidable Adverse Impacts

As identified above, there are no significant unavoidable adverse impacts of the proposed project related to climate change and GHG emissions.

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5.0 ALTERNATIVES

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) describe a reasonable range of alternatives to the proposed project or to its location that could feasibly attain most of the basic project objectives but avoid or substantially lessen any of the significant effects, and that it evaluate the comparative merits of each of the alternatives. This section sets forth the potential alternatives to the proposed project and evaluates them as required by CEQA and the CEQA Guidelines.

Key provisions in the CEQA Guidelines regarding alternatives (section 15126.6) are summarized below to explain the foundation of the alternatives analysis in an EIR:

- The EIR will describe and analyze a range of reasonable alternatives to the project or the project's location that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant impacts of the project. The EIR will also evaluate the comparative merits of the alternatives.
- The No Project/No Development Alternative shall be evaluated along with its impact. The No Project/Development Alternative analysis shall discuss the existing conditions as well as what could be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by the "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.
- Factors that may be taken into account when addressing the feasibility of alternatives are site suitability; economic viability; availability of infrastructure; General Plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site(s).
- Only alternative locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative under which the effect cannot be reasonably ascertained and implementation is remote and speculative.

In identifying alternatives for this Program EIR, alternatives were selected by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) that comply with CEQA requirements, would be reasonable and feasible for the project site, are in consideration of the existing uses of the project area, and are based upon comments received on the Notice of Preparation (NOP) and/or at the public scoping meeting for this Program Environmental Impact Report (PEIR).

In addition to the alternatives selected for evaluation, several possible alternatives were considered but not studied further because they failed to meet the project objectives and/or were not deemed feasible. These considered, but rejected, alternatives are described in Section 5.4.1

5.2 PROJECT OBJECTIVES

As stated in Section 3.0, Project Description, the objectives set forth below have been established for the Shipyard Sediment Remediation Project and will aid decision-makers in their review of the project and associated environmental impacts. The primary goal of the project is to improve water quality in San Diego Bay, consistent with the provisions of the Tentative Cleanup and Abatement Order (CAO). The specific project objectives are:

- Protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state by executing a shipyard sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001;
- Attain cleanup levels as included in the Tentative CAO No. R9-2011-0001 (judged to be technologically and economically feasible as defined in section 2550.4 of CCR Title 23, pursuant to Resolution No. 92-49);
- Remediate areas identified in Attachment 2 of Tentative CAO No. R9-2011-0001;
- Minimize adverse effects to aquatic life beneficial uses, including Estuarine Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR);
- Minimize adverse effects to aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE);
- Minimize adverse effects to human health beneficial uses, including Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Shellfish Harvesting (SHELL), and Commercial and Sport Fishing (COMM);
- Implement a cleanup plan that will have long-term effectiveness;
- Minimize adverse effects to the natural and built environment;
- Avoid or minimize adverse impacts to residential areas;

- Result in no long-term loss of use of shipyard and other San Diego Bay-dependent facilities; and
- Minimize short-term loss of use of shipyard and other San Diego Bay-dependent facilities.

5.3 PROPOSED PROJECT

As previously noted, alternatives must be evaluated as to their ability to reduce or eliminate significant unavoidable adverse environmental impacts associated with the proposed project, including an alternate location, and feasibly attain the basic objectives of the project. The comparative merits of the different alternatives are evaluated in accordance with CEQA.

The project addressed in this PEIR is the implementation of Tentative CAO No. R9-2011-0001, which requires that remedial actions be implemented within the Shipyard Sediment Site. Remedial actions may include dredging, application of clean sand cover, and/or natural recovery depending upon a number of factors, including levels of contamination in the sediment and site accessibility. The Tentative CAO determined that dredging and disposal of sediments is the proposed remedy for approximately 15.2 acres of the site and is expected to generate approximately 143,400 cubic yards (cy) of contaminated marine sediment. In addition to the 15.2 acres targeted for dredging, approximately 2.3 acres of the project site are inaccessible or under-pier areas that will be remediated by one or more methods other than dredging, most likely by application of clean sand cover. The remedial action would be followed by a period of post-remedial monitoring.

The project includes the dredging of and/or applying a clean sand cover to the contaminated soils; vessel transport to shore; dewatering, stockpiling, and testing of dredged materials at a landside staging location; and truck transport of dredge materials to the appropriate landfill disposal facility.

There are two scheduling options for completion of the remedial action. The first scheduling option is expected to take 2 to 2.5 years to complete. Under this option, the dredging operations would occur for 7 months of the year and would cease from April through August during the endangered California least tern breeding season.

The second option is to implement the remedial plan with continuous dredging operations, which would be expected to take approximately 12.5 months to complete. This scenario assumes that the dewatering, solidification, and stockpiling of the materials would occur simultaneously and continuously with the dredging. Also assumed under this compressed schedule option is that dredging operations could proceed year-round, including during the breeding season of the endangered California least tern (April through August). Both scheduling options would be followed by a period of post-remedial monitoring as required by the Tentative CAO. Some variation in the schedule may occur depending upon selected

equipment size and numbers, the distance to the process area, the potential ship traffic, and the contractual obligations of the shipyards at the time the dredge activity is to occur.

The proposed project requires a landside sediment management site with sufficient space and access to stockpile, dewater, and transport the removed dredge material. Although the exact area required for sediment management will be determined during the final design phase, it is estimated that 2 to 2.5 acres would be required. Five potential staging areas have been identified and discussed throughout this PEIR.

Once the dredge materials have been dried and tested, they will be loaded from the staging area onto trucks for disposal at an approved landfill. For purposes of this project, it is assumed that 85 percent of the material will be transported from the staging area to Otay Landfill, approximately 15 miles southeast of the Shipyard Sediment Site. Although the sediment is not known to be classified as California hazardous material, it will be tested upon removal and prior to disposal. It is assumed for the purposes of this PEIR that up to 15 percent of the material will require transport to a hazardous waste facility (a Class I facility), which will most likely be the Kettleman Hills Landfill in Kings County, California, near Bakersfield.

Please refer to Chapter 3.0 of this PEIR for more information regarding the proposed project, including details of the proposed dredging and clean sand cover operations, onshore dewatering and treatment, and transportation and disposal operations. Specifically, Figures 3-1 through 3-7 illustrate the location of the project site and potential staging areas.

The potential impacts of the proposed project are described in Chapter 4.0, along with feasible mitigation measures to reduce significant impacts. Many of the project impacts are below established thresholds of significance or can be reduced to below thresholds of significance with the implementation of mitigation measures. Some impacts cannot be reduced to below a level of significance, even with mitigation, and are considered unavoidable adverse impacts. The unavoidable adverse impacts for the proposed project are described below.

5.3.1 Significant Unavoidable Environmental Impacts of the Proposed Project

5.3.1.1 Air Quality

The proposed Shipyard Sediment Remediation Project would result in significant unavoidable construction-related adverse air quality impacts of oxides of nitrogen (NO_X) (which is a precursor to ozone [O_3]) emissions, even after the implementation of feasible standard conditions and mitigation measures. While adherence to San Diego Air Pollution Control District (APCD) rules and regulations and identified mitigation measures would reduce this impact, it would remain significant and adverse because the City of San

Diego and National City daily thresholds for NO_X would be exceeded. There are no other feasible mitigation measures that are available to offset this significant impact.

Construction activities for the Shipyard Sediment Remediation Project would also contribute to construction-related adverse cumulative air quality impacts because the San Diego Air Basin (SDAB) is presently in nonattainment for O_3, and the proposed project, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3. Therefore, the cumulative construction air quality impacts of the proposed project would remain significant.

5.3.2 Attainment of Project Objectives

The proposed project implements all of the project objectives. The proposed project includes the removal of debris and sediment and the placement of clean sand cover over sediments not suitable for dredging, thereby improving water quality in San Diego Bay, consistent with the Draft Technical Report (DTR) for the Tentative CAO. The proposed project will attain the cleanup levels judged to be technologically and economically feasible for the remedial footprint areas identified in the Tentative CAO. [1]

Removal and covering of the contaminated sediments will protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state. Further, implementation of the post-remediation monitoring as required will ensure the long-term effectiveness of the project.

Protective measures, such as the use of double silt curtains and environmental clamshell buckets, have been incorporated into the project design to ensure that the proposed project minimizes adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses. Measures proposed to protect water quality during removal and covering operations have been specifically designed to minimize adverse effects to the natural and built environment.

Both scheduling options for the proposed project will reflect the contractual obligations of the shipyards at the time the dredge activity is to occur. It is anticipated that the shipyards will be able to schedule most of the contract work around the remediation efforts with few exceptions. A 10 percent delay in the schedule has been anticipated to accommodate necessary ship movements in order to minimize short-term and long-term losses of shipyard uses and those of other San Diego Bay-dependent facilities. Additionally, the project has incorporated an alternative truck route for Staging Areas 1 through 4 in order to minimize adverse impacts to residential areas.

[1] The Tentative CAO established alternative cleanup levels for the project that are the lowest technologically and economically achievable levels, as required under the California Code of Regulations (CCR) Title 23 section 2550.4(e).

Overall, the implementation of the proposed project meets all project objectives and results in the improvement of water quality in San Diego Bay to ensure its beneficial uses and for present and future generations.

5.4 SELECTION OF ALTERNATIVES

Section 21100 of the Public Resources Code (PRC) and CCR section 15126 of the CEQA Guidelines require an EIR to identify and discuss a No Project/No Development Alternative as well as a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant environmental impacts. This section describes alternatives that were considered by the San Diego Water Board but ultimately rejected, discusses alternative sites for the proposed project, and outlines the CEQA alternatives selected for consideration in this PEIR.

5.4.1 Alternatives Considered But Not Studied Further

Section 15126.6(c) of the CEQA Guidelines requires EIRs to identify any alternatives that were considered by the Lead Agency but were rejected during the scoping process and briefly explain the reasons underlying the Lead Agency's determination. In evaluating an appropriate range of alternatives to the proposed project, a number of alternatives were considered and rejected by the San Diego Water Board. The alternatives considered and rejected for the proposed project are described below.

5.4.1.1 Ocean Disposal

This alternative consisted of dredging the remedial footprint consistent with the Tentative CAO and DTR. However, under this alternative, the dredged sediments would be not dewatered, treated, and trucked to a landfill site. Under this alternative, the sediments would be disposed of by barge at a United States Environmental Protection Agency (U.S. EPA) approved ocean disposal site. The ocean disposal site for the San Diego area is San Diego 100 Fathom, more commonly known as LA-5. Disposal at LA-5 is limited to dredged materials that comply with U.S. EPA Ocean Dumping Regulations and Corps Permitting Regulations. In addition, if material were tested and found to be suitable for open water ocean disposal, Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 requires authorization from the United States Army Corps of Engineers (ACOE) for transportation of dredged material for disposal in the ocean where it is determined that the disposal will not unreasonably degrade or endanger human health, welfare, or amenities; the marine environment or ecological systems; or economic potentialities.

Based on the preliminary analysis conducted in support of the Tentative CAO, sediments that were identified for remedial action within the remedial footprint exceeded sediment cleanup levels and/or failed toxicity testing guidance, and/or did not meet benthic community composition for ocean disposal. Chemicals of concern that exceeded their sediment screening criteria within the identified remedial footprints include metals (arsenic, cadmium, chromium, copper, lead, mercury, silver, selenium, zinc), butyltins (mono, di, tetra, and tri), high molecular weight polynuclear aromatic hydrocarbons (HPAHs), polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs), Diesel Range Organics (DRO), and Residual Range Organics (RRO).

Therefore, because the sediments would not meet the criteria for ocean disposal due to the elevated chemical concentrations, this alternative was not deemed feasible and was rejected from further consideration by the San Diego Water Board.

5.4.1.2 Confined Disposal Facility (CDF) with New Pier Use

This alternative consisted of the creation of a CDF utilizing sheet pile walls or other structural means to contain the sediments. This alternative would have included the beneficial use of placing the dredged sediment into, and in order to create, a new pier area. Sediment would be mixed with pozzolanics and placed by clamshell application. This alternative would have required a dry cell sufficiently large enough to contain all the sediment and to allow placement, working, and treatment of the material.

The CDF with New Pier Use Alternative would meet the primary project objectives by removing the sediment within the identified remediation area. This alternative assumes the dredging of the same amount of contaminated sediment as the proposed project. Therefore, construction equipment/vehicle emissions during the dredging operations of the sediment would still result in NO_X emissions that would exceed the daily emissions threshold established by the City of San Diego and National City for that pollutant. Because the SDAB is presently in nonattainment for O_3, construction activities for this alternative, in conjunction with other planned projects, would also contribute to construction-related adverse cumulative air quality impacts. Therefore, this alternative would not avoid or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project.

Consistent with CEQA Guidelines section 15126.6(f)(1), the San Diego Water Board determined that they did not already own and could not reasonably acquire, control or otherwise have access to a site on which to construct a CDF pier structure. Therefore, due to the lack of ownership or access to an adequate land site required for implementation of this alternative, and because this alternative would not eliminate or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project, this alternative was rejected from further consideration.

5.4.1.3 CDF with New Non-Load-Bearing Pier

This alternative is a CDF similar to the new Pier Use Alternative described above. However, under this alternative, the sediment placed in a new pier area would not be load bearing. The pier load would be designed to rest on piles. Sediment would be placed in the CDF by clamshell and would be contained by sheet pile walls on all sides. Sediment would not require mixing with pozzolanics. This alternative assumed a partially dry cell would be used to minimize water treatment.

The CDF with a Non-Load-Bearing Pier Alternative would meet the primary project objectives by removing the sediment within the identified remediation area. This alternative assumes the dredging of the same amount of contaminated sediment as the proposed project. Therefore, construction equipment/vehicle emissions during the dredging operations of the sediment would still result in NO_X emissions that would exceed the daily emissions threshold established by the City of San Diego and National City for that pollutant. Because the SDAB is presently in nonattainment for O_3, construction activities for this alternative, in conjunction with other planned projects, would also contribute to construction-related adverse cumulative air quality impacts. Therefore this alternative would not avoid or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project.

Consistent with CEQA Guidelines section 15126.6(f)(1), the San Diego Water Board determined that they did not already own and could not reasonably acquire, control or otherwise have access to a site on which to construct a CDF non-load-bearing pier. Therefore, due to the lack of ownership or access to an adequate land site required for implementation of this alternative, and because this alternative would not eliminate or substantially lessen the unavoidable adverse air quality impacts associated with the proposed project, this alternative was rejected from further consideration.

5.4.1.4 Alternative Locations

CEQA Guidelines section 15126.6(f)(2)(A) states: "The key question [with regard to alternative locations] and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR." Further, CEQA Guidelines section 15126.6(f)(1) states that alternative locations only need be considered if the project proponent can reasonably acquire or already owns the identified alternative site.

The proposed project is location-specific, as the primary objective of the project is to improve water quality in San Diego Bay by removing the contaminated sediments from the identified remedial footprint, consistent with the provisions of the DTR prepared in support of Tentative CAO No. R9-2010-0002. Given that the contaminated sediments are site-

specific, there are no alternative locations; therefore, the PEIR does not include analysis regarding alternative locations. Further, the PEIR includes five alternative staging areas for dewatering, treatment, and stockpiling of the sediments prior to removal to a landfill facility. Therefore, alternative landside staging locations have been already incorporated as a component of the project and have been considered and analyzed throughout the PEIR.

5.4.2 PEIR Alternatives

Consistent with the CEQA Guidelines criteria for selection of project alternatives, the following four alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project but that may avoid or substantially lessen any of the significant impacts of the project. Therefore, the alternatives considered in this PEIR include the following:

- **Alternative 1:** No Project/No Development
- **Alternative 2:** Confined Aquatic Disposal (CAD) Site
- **Alternative 3:** Convair Lagoon Confined Disposal Facility (CDF)
- **Alternative 4:** CDF with Beneficial Use of Sediments

5.5 ALTERNATIVE 1: NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Consistent with Section 15126.6(e) of the CEQA Guidelines, the No Project Alternative is the existing condition of the project site at the time the NOP was published on November 25, 2009, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved and implemented. The setting of the site at the time of the NOP is described throughout Chapter 4.0 of this PEIR with respect to individual environmental issues and forms the baseline of the impact assessment of the proposed project. This alternative summarizes environmental conditions that would exist if the project were not implemented.

This alternative evaluates circumstances under which the project does not proceed. Alternative 1 would not implement the Tentative CAO, and no cleanup of the contaminated marine sediments in San Diego Bay would occur.

5.5.1 Attainment of Project Objectives

Under the No Project Alternative, the accumulation of waste in the San Diego Bay marine sediments would continue to adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses. Alternative 1 would not implement any of the

San Diego Water Board's basic objectives or overall goal to remediate the contaminated marine sediments. Further, the No Project Alternative is not consistent with the DTR for the Tentative CAO. A more detailed summary of the attainment of project objectives under Alternative 1 is provided below.

- Alternative 1 would not attain the cleanup levels and would not remediate areas as identified in the Tentative CAO because the Tentative CAO would not be implemented. Therefore, Alternative 1 would not protect the quality of the waters of San Diego Bay for the use and enjoyment by the people of the state.
- Alternative 1 would not reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, or human health beneficial uses because the contaminated sediments would remain in place.
- Alternative 1 would not implement a cleanup plan and would not realize any long-term public benefits associated with the cleanup of the contaminated marine sediments; the site would continue to constitute a public nuisance by being injurious to human health, obstructing the free use of property, and interfering with the comfortable enjoyment of life and property.
- Because there is no construction or dredging activity associated with Alternative 1, this alternative would not result in any long-term or short-term loss of use of shipyard and other San Diego Bay-dependent facilities; however, the nuisance and public health effects of the contaminated sediments would continue to have a negative impact on San Diego Bay-dependent facilities and beneficial uses.

5.5.2 Environmental Analysis

In leaving the site in its current condition, the elevated levels of pollutants above San Diego Bay background conditions would continue to exist in the bottom marine sediments of the bay. The existing contaminants in the sediments would continue to adversely affect aquatic life, aquatic-dependent wildlife, human health, and San Diego Bay beneficial uses. Alternative 1 would not improve water quality in San Diego Bay and would not reduce the threats to the health and safety of either marine communities or humans.

No temporary construction traffic or noise would occur, and this alternative would not create air quality impacts, contribute to global warming, or generate objectionable odors as no construction equipment would be present. There would be no risk of accidental spills related to hazards as no cleanup activities would occur. In addition, no temporary impacts to marine species or communities would occur.

5.5.3 Conclusion

Alternative 1 would not result in any new physical environmental effects and would avoid significant construction-related impacts to air quality. Alternative 1 would not further, and therefore would be inconsistent with, the project objectives.

5.6 ALTERNATIVE 2: CONFINED AQUATIC DISPOSAL (CAD) SITE

Alternative 2 consists of dredging and constructing a CAD facility at a yet to be determined location. A CAD facility is a submerged containment area where dredged material is placed. This technique has been employed in San Diego Bay and elsewhere in the country and can simultaneously be enhanced to provide aquatic habitat. The construction of the CAD facility would require dredging a sufficient amount of marine sediments in order to construct a CAD facility large enough to contain the contaminated sediments from the Shipyard Sediment Site. The CAD facility would be constructed by mechanically dredging a large disposal area. A disposal location for the dredged materials would need to be determined. However, for purposes of this alternatives analysis, it is assumed that a majority of the sediments removed for construction of the CAD facility could be barged to an ocean disposal location. The location, size, shape, and design of the CAD facility would be determined during the design phase.

Alternative 2 involves the mechanical dredging of debris and sediments from the Shipyard Sediment Site. Contaminated marine sediments would be transported by barge to the CAD facility and deposited. The excess noncontaminated sediment from the CAD facility can be beneficially used as cover next to structures and under piers where dredging is infeasible. Debris removed from the project site would be taken to a landside staging area and sampled. The debris would be trucked to the appropriate landfill facilities after sampling was completed.

Once all the contaminated marine sediments have been placed in the CAD facility, and a sufficient amount of time had passed to allow the sediments to consolidate in the CAD facility, a clean cap of material would be put in place as a cover to contain the CAD facility. The CAD facility would require Waste Discharge Requirements (WDRs) issued by the San Diego Water Board for the design and construction of the CAD facility as well as ongoing monitoring to ensure that the CAD cap maintains its integrity for sequestering underlying contaminants, and that the marine biological community was re-establishing itself and was not adversely affected in the immediate area of the CAD facility.

5.6.1 Attainment of Project Objectives

Alternative 2 would obtain the project objectives, would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay, and would remove the contaminated sediments within the remedial footprint. Alternative 2 is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6). A more detailed summary of the attainment of project objectives under Alternative 2 is provided below.

- Alternative 2 would attain the cleanup levels and remediate areas as identified in the Tentative CAO; therefore, Alternative 2 would protect the quality of the waters of San Diego Bay for its use and enjoyment by the people of the state.
- Alternative 2 would reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses by the removal and/or covering of the contaminated sediments in the remedial footprint.
- Alternative 2 would implement a cleanup plan that would have long-term effectiveness and would realize long-term public benefits associated with the cleanup of the contaminated marine sediments. The site would no longer constitute a public nuisance.
- Because Alternative 2 would relocate the sediments within San Diego Bay via barge, Alternative 2 would not require as large a landside staging area for dewatering and treatment of the sediments as the proposed project; therefore, Alternative 2 would reduce the number of trucks required and minimize the adverse effects to residential areas and the built environment.
- The location of the CAD facility for Alternative 2 is unknown at this time; therefore, it is unknown whether this alternative would result in any short-term or long-term loss of use of shipyard or other San Diego Bay-dependent facilities.

5.6.2 Environmental Analysis

5.6.2.1 Transportation

Alternative 2 does not involve the landside dewatering, treatment, and hauling of the dredged sediments. Alternative 2 would result in fewer vehicular trips than the proposed project since the dredged sediments from the remedial footprint would be transported by barge to the CAD facility and would not require landside treatment or trucking to a landfill. Although some debris removed from the site would require sampling and possibly treatment at a landside staging area, and some worker trips would be associated with this alternative, the majority of trucks trips associated with the proposed project would not occur. The proposed project generates a total of approximately 50 haul trucks, 8 delivery trucks, and 29 employees to the

project site on the busiest day, resulting in 348 passenger car equivalent (PCE) daily trips.[1] Alternative 2 would not require off-site trucking and therefore would significantly reduce the traffic generated as compared to the proposed project. Under this alternative, the project-related significant impacts for the I-5 southbound ramp/Boston Avenue intersection and the roadway segment of Boston Avenue between 28th Street and the I-5 southbound ramp would not occur, and no alternate truck route would be required as mitigation.

Although the location or need for any landside staging area is unknown at this time, Alternative 2 would not require a large staging area; therefore, many alternative staging sites could be suitable for this alternative. Because there would be more options for selection of a construction staging area, there would be more opportunities to locate the staging activity away from the planned Bayshore Bikeway and also to avoid a short-term loss of any employee parking facilities. Therefore, Alternative 2 would have less potential for project-related tuck trips to interfere with the implementation and/or operation of the Bayshore Bikeway and employee parking, and would most likely not require any mitigation related to those potential impacts.

In conclusion, the traffic impacts of Alternative 2 would be significantly reduced as compared to the proposed project, but would remain less than significant, similar to the proposed project.

5.6.2.2 Water Quality

Water quality impacts related to the dredging operations of Alternative 2 would be similar to the proposed project. Similar impacts due to resuspension, spillage, and misplaced sediment during dredging operations would be anticipated during operation of Alternative 2, compared to the proposed project. Water quality Best Management Practices (BMPs) (including visual monitoring and recording of water turbidity during the dredging operations), measures to adhere to water quality objectives in the Water Quality Control Plan for the San Diego Basin (Basin Plan), and utilization of a double silt curtain to contain the dredge area would be included under Alternative 2, similar to the proposed project.

Alternative 2 would require WDRs issued by the San Diego Water Board for the design and construction of the CAD facility. Alternative 2 would require implementation of additional BMPs, treatment measures, and monitoring requirements related to the construction of the CAD facility and to ensure that the CAD cap maintains its integrity for sequestering underlying contaminants.

Alternative 2 would not require the landside dewatering, treatment, and disposal of sediments and therefore would not require a National Pollutant Discharge Elimination System

[1] The *Traffic Impact Analysis* (LSA Associates, May 2011) converted the haul and delivery truck trips to PCE trips at a ratio of 2.5 passenger cars per truck.

(NPDES) General Permit for storm water discharges. Further, Alternative 2 would not have impacts related to potential contamination of runoff and would not discharge any decanted water to the sewer system.

Similar to the proposed project, Alternative 2 would result in the removal of contaminated sediments and would result in improved water quality conditions in the San Diego Bay waters as compared to existing conditions. Overall, both Alternative 2 and the proposed project would result in similar improvements to water quality.

5.6.2.3 Hazards and Hazardous Materials

Similar to the proposed project, Alternative 2 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, this alternative has the same potential as the proposed project to create a hazard to the environment through the routine transport, use, or disposal of hazardous materials, and upset and accident conditions involving the release of hazardous materials into the environment. Alternative 2 would have a slightly greater risk related to the release of contaminated sediments into the marine environment due to the relocation and placement of the sediments into the CAD facility.

Alternative 2 would not involve the landside dewatering, treatment, and trucking of the sediments to a landfill, and therefore would have reduced impacts associated with those activities as compared to the proposed project.

Overall, potential impacts related to hazards and hazardous materials impacts for Alternative 2 are slightly reduced as compared to the proposed project because activities related to the treatment and trucking of sediments are not required for implementation of this alternative.

5.6.2.4 Noise

Construction noise levels associated with the dredging activities of Alternative 2 would be similar to those of the proposed project since the same amount of sediment would be removed. However, unlike the proposed project, Alternative 2 would generate additional noise associated with the construction of the CAD facility as well as the barge activities associated with placement of the dredged sediment within the CAD facility.

No landside dewatering, treatment or trucking of dredged sediments would occur under Alternative 2. Therefore, similar to the proposed project, construction noise impacts for Alternative 2 are not expected to exceed the construction noise thresholds established by either the City of San Diego (75 A-weighted decibels [dBA] at an equivalent continuous sound level [L_{eq}]) or National City (75 dBA at a maximum noise level [L_{max}]). However, because there would be a significant reduction in the amount of truck traffic associated with

Alternative 2, noise impacts on sensitive receptors due to construction traffic are substantially reduced with Alternative 2 as compared to the proposed project.

The elimination of landside dewatering, treatment, and transport of dredged sediments under Alternative 2 would result in fewer noise impacts overall as compared to the proposed project.

5.6.2.5 Marine Biological Resources

The proposed project's dredging operations will result in the temporary loss of marine invertebrates and fish within the area contained within the silt curtains, as well as impacts to eelgrass areas and a reduction in the available foraging area for local marine mammals, marine reptiles, fish-eating birds, and various fish species.

Similar to the proposed project, Alternative 2 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, Alternative 2 would result in similar impacts to marine resources within the remedial footprint area. Those impacts would be less than significant with implementation of mitigation measures, similar to the proposed project.

Alternative 2 includes additional areas within the San Diego Bay waters that would be disturbed due to the construction and filling of the CAD facility. Although the location of the CAD facility is not known at this time, this alternative would have a slightly greater potential to impact marine resources due to the additional construction activities and placement of a permanent structure in the waters of San Diego Bay. Further, although ongoing monitoring would be required to ensure that the CAD cap maintains its integrity, Alternative 2 could have greater impacts if the CAD facility did not effectively sequester underlying contaminants and the marine biological community did not re-establish itself. However, construction of the CAD could also present an opportunity to simultaneously provide enhanced or restored aquatic habitat (i.e. return of previously dredged areas to a depth suitable for eelgrass beds). Therefore, impacts to marine biological resources are considered slightly greater under Alternative 2 due to the potential for impacts to be affected in the immediate area of the CAD facility.

In conclusion, the potential marine biological impacts of Alternative 2 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project.

5.6.2.6 Air Quality

The proposed project would result in significant and unavoidable construction-related adverse air quality impacts of NO_X emissions during the dredging and landside staging operation phases of the project.

Because there would be no landside dewatering, treatment, and no significant off-site trucking activities associated with Alternative 2, NO_X emissions associated with landside staging operations would not be anticipated to exceed thresholds. Therefore, Alternative 2 would eliminate or substantially reduce the significant and adverse impacts related to these issues.

Although landside construction activities would be substantially reduced under Alternative 2, the construction and filling of the CAD facility as proposed under Alternative 2 would increase the amount of marine vessel operations and resulting emissions. Therefore, although Alternative 2 would generate NO_X emissions during dredging of the remedial footprint similar to the proposed project, the operations associated with construction and filling of the CAD facility would generate marine vessel emissions greater than the proposed project, and those NO_X emissions would remain a significant adverse impact for Alternative 2.

Similar to the proposed project, Alternative 2 would also contribute to construction-related adverse cumulative air quality impacts because the SDAB is presently in nonattainment for O_3, and this alternative, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3.

5.6.2.7 Climate Change and Greenhouse Gas Emissions

Similar to the proposed project, Alternative 2 would result in short-term emissions associated with the use of construction equipment for dredging activities, but would not create an ongoing increase in or contribution to climate change because there are no on-site stationary sources. Although landside construction activities would be substantially reduced under Alternative 2, the construction and filling of the CAD facility as proposed would result in an increased amount of marine vessel operations and resulting emissions as compared to the proposed project.

Similar to the proposed project, Alternative 2 would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases (GHGs), and impacts associated with this issue would be less than significant.

Overall, Alternative 2 would have a less than significant impact related to its contribution to global climate change (GCC) in the form of GHG emissions, similar to the proposed project.

5.6.3 Conclusion

Alternative 2 would meet the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 2 would

remove the contaminated sediments within the remedial footprint and would attain the cleanup levels as identified in the Tentative CAO.

The significant project impacts related to landside construction air quality would be avoided under Alternative 2. However, air quality emissions associated with dredging activities (due to construction vessels and equipment) would increase under this alternative and remain a significant adverse impact. In addition, Alternative 2 would not avoid the significant cumulative air quality impacts related to the nonattainment status for O_3.

The potential marine biological impacts of Alternative 2 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project. Alternative 2 would result in impacts similar to the proposed project for water quality, hazards, and climate change. However, Alternative 2 would result in reduced impacts for traffic and noise as compared with the proposed project.

5.7 ALTERNATIVE 3: CONVAIR LAGOON CONFINED DISPOSAL FACILITY (CDF)

Alternative 3 consists of the creation of a nearshore CDF at Convair Lagoon. A CDF is an engineered structure consisting of dikes or other retaining structures that extend above any adjacent water surface and enclose a disposal area for containment of dredged material, thereby isolating the dredged material from adjacent waters or land. A nearshore CDF typically creates new shoreline. The proposed Alternative 3 Convair Lagoon CDF would be constructed by removing abandoned ramps and sub-marine structures and excavating marine soils from the Convair Lagoon site. The excavated materials would most likely be trucked to an upland landfill. Rock revetment would then be utilized to create an in-water area to contain the sediments. The precise size, shape, and design of the CDF would be determined during the design phase.

Similar to the CAD Alternative, the CDF Alternative involves the mechanical dredging of debris and sediments from the shipyard site. Contaminated marine sediments would be transported by barge to the CDF and deposited. Debris removed from the sediment remediation site would be taken to a landside staging area and sampled. The debris would be trucked to the appropriate landfill facilities after sampling was completed.

No dewatering of contaminated sediments would be required with the CDF Alternative. The placement and construction of the CDF would allow water to pass through as the contaminated sediments are placed from the barge into the CDF. The CDF will require WDRs issued by the San Diego Water Board for the design and construction of the CDF ongoing monitoring to ensure that the CDF cap maintains its integrity for sequestering underlying contaminants, and marine biological communities to be re-established and not adversely affected in the immediate area of the CDF structure.

The CDF Alternative is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6).

5.7.1 Attainment of Project Objectives

Alternative 3 would obtain the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 3 would remove the contaminated sediments within the remedial footprint and is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6). A more detailed summary of the attainment of project objectives under Alternative 3 is provided below.

- Alternative 3 would attain the cleanup levels and remediate areas as identified in the Tentative CAO; therefore, Alternative 3 would protect the water quality of San Diego Bay for the use and enjoyment by the people of the state.
- Alternative 3 would reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses by the removal and/or covering of the contaminated sediments in the remedial footprint.
- Alternative 3 would implement a cleanup plan that would have long-term effectiveness and would realize long-term public benefits associated with the cleanup of the contaminated marine sediments; the site would no longer constitute a public nuisance.

5.7.2 Environmental Analysis

A complete analysis of the potential impacts related to Alternative 3, the Convair Lagoon CDF, was completed by Atkins and is included in Section 5.10 of this chapter. Technical appendices in support of the Convair Lagoon CDF Alternative Analysis are included as Appendices I through O of this PEIR.

The Convair Lagoon CDF Alternative would have either a less than significant impact or no impact associated with the following topics: Aesthetics, Agricultural and Forestry Resources, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation and Traffic, and Utilities and Service Systems.

Implementation of the Convair Lagoon CDF Alternative could result in potentially significant impacts to the following environmental topics: Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology/Water Quality, and Land Use/Planning. Please refer to Section 5.10 for a complete discussion of impacts and mitigation associated with each of these topics for Alternative 3.

5.7.3 Conclusion

The Convair Lagoon CDF Alternative would meet the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 3 would remove the contaminated sediments within the remedial footprint and would attain the cleanup levels as identified in the Tentative CAO.

The significant project air quality impacts related to construction emissions would be reduced but not avoided under Alternative 3. Further, air quality emissions associated with dredging activities (due to construction vessels and equipment) would increase under this alternative due to the removal and construction activities associated with the construction of the CDF. These air quality impacts would remain a significant adverse impact. In addition, Alternative 3 would not avoid the significant cumulative air quality impacts related to the nonattainment status for O_3.

The potential marine biological impacts and traffic impacts of the Convair Lagoon CDF Alternative would be greater as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project. Alternative 3 would result in impacts similar to the proposed project for water quality, hazards, noise, and climate change.

5.8 ALTERNATIVE 4: NEARSHORE CDF WITH BENEFICIAL USE OF SEDIMENTS

The Alternative 4 CDF is similar to Alternative 3 in that it would create a nearshore CDF; however, Alternative 4 includes the beneficial use of placing the contaminated sediment as cover for areas under existing piers that cannot be dredged. The placed sediment would be contained by sheet pile walls on both sides. The contaminated sediment would be dredged from the project site, mixed with water to create a heavy slurry, and then mixed with pozzolanics and pumped in-place under the structures. Existing water will be pumped out and any decanted or infiltrated water will be treated prior to release.

The area under the piers that cannot be dredged is not large enough to contain all of the contaminated sediment; consequently, landfill disposal will be necessary for the excess. The excess would be transported by barge to a landside staging area, treated, and then trucked to an upland facility. Similarly, debris removed from the Shipyard Sediment Site would be taken to the landside staging area and sampled. The debris would be trucked to the appropriate landfill facilities after sampling was completed.

Alternative 4 is consistent with the DTR for the Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6)

5.8.1 Attainment of Project Objectives

Alternative 4 would obtain the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 4 would remove the contaminated sediments within the remedial footprint and is consistent with the DTR for Tentative CAO No. R9-2010-0002, Finding 30 (pages 30-5 and 30-6). A more detailed summary of the attainment of project objectives under Alternative 4 is provided below.

- Alternative 4 would attain the cleanup levels and remediate areas as identified in the Tentative CAO; therefore, Alternative 4 would protect the quality of the waters of San Diego Bay for the use and enjoyment by the people of the state.
- Alternative 4 would reduce or minimize adverse effects to aquatic life beneficial uses, aquatic-dependent wildlife beneficial uses, and human health beneficial uses by the removal and/or covering of the contaminated sediments in the remedial footprint.
- Alternative 4 would implement a cleanup plan that would have long-term effectiveness and would realize long-term public benefits associated with the cleanup of the contaminated marine sediments; the site would no longer constitute a public nuisance.
- Although Alternative 4 would require a landside staging area for dewatering and treatment of the excess sediments, the amount of land would be reduced as compared to the proposed project. Therefore, this alternative would reduce the number of trucks required to transport the excess sediment, thus minimizing the adverse effects to residential areas and the built environment.
- The location of the CDF for Alternative 4 is unknown at this time; therefore, it is unknown whether this alternative would result in any short-term or long-term loss of use of shipyard or other San Diego Bay-dependent facilities.

5.8.2 Environmental Analysis

5.8.2.1 Transportation and Circulation

Alternative 4 involves a reduced amount of dewatering, treatment, and fewer vehicle trips than the proposed project since only the excess sediments that cannot be placed as cover for areas under existing piers would require landside treatment and trucking to a landfill.

The proposed project generates a total of approximately 50 haul trucks, 8 delivery trucks, and 29 employees to the project site on the busiest day, resulting in 348 PCE.[1] Alternative 4 would reduce the amount of sediments requiring off-site trucking and therefore would significantly reduce the traffic generated as compared to the proposed project. Although the

[1] The *Traffic Impact Analysis* (LSA Associates, May 2011) converted the haul and delivery truck trips to PCE trips at a ratio of 2.5 passenger cars per truck.

average daily trips would be reduced under Alternative 4, impacts related to traffic and circulation would remain less than significant with proposed mitigation for this alternative, similar to the proposed project.

Although the location and size of the landside staging area is unknown at this time, Alternative 4 would not require as large a staging area as the proposed project; therefore, many alternative construction staging areas could be suitable for this alternative. Because there would be more options for selection of a construction staging area, there would be more opportunities to locate the staging activity away from the planned Bayshore Bikeway and also avoid a short-term loss of any employee parking facilities. Therefore, Alternative 4 would have less potential for project-related tuck trips to interfere with implementation and/or operation of the Bayshore Bikeway or employee parking. Therefore, impacts related to these issues are less under Alternative 4 than for the proposed project.

In conclusion, traffic impacts of Alternative 4 would remain less than significant, similar to the proposed project, but would be reduced as compared to the proposed project.

5.8.2.2 Hydrology and Water Quality

Water quality impacts related to the dredging operations of Alternative 4 would be similar to the proposed project. Similar impacts due to resuspension, spillage, and misplaced sediment during dredging operations would be anticipated during operation of Alternative 4 compared to the proposed project. Water quality BMPs (including visual monitoring and recording of water turbidity during the dredging operations), measures to adhere to water quality objectives in the Basin Plan, and utilization of a double silt curtain to contain the dredge area would be included under Alternative 4, similar to the proposed project.

Alternative 4 would require WDRs issued by the San Diego Water Board for the design and construction of the CDF. Alternative 4 would require implementation of additional BMPs, treatment measures, and monitoring requirements related to construction of the CDF and to ensure that the CDF covering maintains its integrity for sequestering underlying contaminants.

Alternative 4 would not require as much landside dewatering, treatment, and disposal of sediments as the proposed project, but would still require a NPDES General Permit for storm water discharges. Further, Alternative 4 would have potential impacts similar to the proposed project that are related to the potential contamination of runoff and discharge of any decanted water to the sewer system.

Similar to the proposed project, Alternative 4 would result in the removal of contaminated sediments and improved water quality conditions in San Diego Bay as compared to existing conditions. Overall, both Alternative 4 and the proposed project would result in similar improvements to water quality.

5.8.2.3 Hazards and Hazardous Materials

Similar to the proposed project, Alternative 4 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, this alternative has the same potential as the proposed project to create a hazard to the environment through the routine transport, use, or disposal of hazardous materials and upset and accident conditions involving the release of hazardous materials into the environment. Alternative 4 would have a slightly greater risk related to the release of contaminated sediments into the marine environment due to the relocation and placement of the sediments in the CDF.

Alternative 4 would involve a lesser amount of dewatering, treatment, and trucking of sediments to a landfill, and therefore would have reduced impacts associated with those activities as compared to the proposed project.

Overall, potential impacts related to hazards and hazardous materials for Alternative 4 are slightly reduced as compared to the proposed project because activities related to the treatment and trucking of sediments are reduced under this alternative.

5.8.2.4 Noise

Construction noise levels associated with the dredging activities for Alternative 4 would be similar to those for the proposed project since the same amount of sediment would be removed. However, unlike the proposed project, Alternative 4 would generate additional noise associated with the construction of the CDF as well as the barge activities associated with placement of the dredged sediment within the CDF.

A reduced amount of landside dewatering, treatment, and trucking of dredged sediments would occur under Alternative 4. Therefore, similar to the proposed project, construction noise impacts for Alternative 4 are not expected to exceed the construction noise thresholds established by either the City of San Diego (75 dBA L_{eq}) or National City (75 dBA L_{max}). However, because there would be a reduction in the amount of truck traffic associated with Alternative 4, noise impacts on sensitive receptors due to construction traffic would be reduced under Alternative 4 as compared to the proposed project.

The reduction in the amount of dewatering, treatment, and transport of dredged sediments under Alternative 4 would result in fewer noise impacts overall as compared to the proposed project.

5.8.2.5 Marine Biological Resources

The proposed project's dredging operations will result in the temporary loss of marine invertebrates and fish within the area contained within the silt curtains, as well as impacts to

eelgrass areas and a reduction in the available foraging area for local marine mammals, marine reptiles, fish-eating birds, and various fish species.

Similar to the proposed project, Alternative 4 would involve the dredging of contaminated sediments within the remedial footprint. Therefore, Alternative 4 would result in similar impacts to marine resources within the remedial footprint area. Those impacts would be less than significant with implementation of mitigation measures, similar to the proposed project.

Alternative 4 includes the creation of a CDF and placement of the dredged sediments under pier areas. This alternative would have a slightly greater potential to impact marine resources in the waters of San Diego Bay due to the additional construction and filling activities associated with the CDF. Further, although ongoing monitoring would be required to ensure that the CDF covering maintains its integrity, Alternative 4 could have greater impacts if the covering did not effectively sequester underlying contaminants and the marine biological community did not re-establish itself. Therefore, impacts to marine biological resources are considered slightly greater under Alternative 4 due to the potential for impacts to be affected in the immediate area of the CDF.

In conclusion, the potential marine biological impacts of Alternative 4 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project.

5.8.2.6 Air Quality

The proposed project would result in significant and unavoidable construction-related adverse air quality impacts of NO_X emissions during the dredging and landside staging operation phases of the project.

Because there would be a reduced amount of dewatering, treatment, and off-site trucking activities under Alternative 4, NO_X emissions associated with landside staging operations would be reduced as compared to the proposed project. Although the amount of excess sediment that would require dewatering and removal by trucks is not known at this time, Alternative 4 would reduce the significant and adverse impacts related to construction-related NO_X emissions.

Although landside construction activities would be reduced under Alternative 4, the construction and placement of sediments for the CDF as proposed under Alternative 4 would increase the amount of marine vessel operations and resulting emissions. Therefore, although Alternative 4 would generate NO_X emissions during dredging of the remedial footprint similar to the proposed project, the operations associated with the CDF would generate marine vessel emissions greater than the proposed project, and those NO_X emissions would remain a significant adverse impact for Alternative 4.

Similar to the proposed project, Alternative 4 would also contribute to construction-related adverse cumulative air quality impacts because the SDAB is presently in nonattainment for O_3, and Alternative 4, in conjunction with other planned projects, would contribute to the existing nonattainment status for O_3.

5.8.2.7 Climate Change and Greenhouse Gas Emissions

Similar to the proposed project, Alternative 4 would result in short-term emissions associated with the use of construction equipment for dredging activities, but would not create an ongoing increase in or contribution to climate change because there are no on-site stationary sources. Although landside construction activities would be reduced under Alternative 4, the construction and filling of the CDF as proposed would result in an increased amount of marine vessel operations and emissions as compared to the proposed project.

Similar to the proposed project, Alternative 4 would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs, and impacts associated with this issue would be less than significant.

Overall, Alternative 4 would have a less than significant impact related to its contribution to GCC in the form of GHG emissions, similar to the proposed project.

5.8.3 Conclusion

Alternative 4 would meet the project objectives and would implement the San Diego Water Board's overall goal to improve water quality in San Diego Bay. Alternative 4 would remove the contaminated sediments within the remedial footprint and would attain the cleanup levels identified in the Tentative CAO.

The significant project impacts related to landside construction air quality impacts would not be avoided under Alternative 4, but would be lessened. However, air quality emissions associated with dredging activities (due to construction vessels and equipment) would increase under this alternative and remain a significant adverse impact. In addition, Alternative 4 would not avoid the significant cumulative air quality impacts related to the nonattainment status for O_3.

The potential marine biological impacts of Alternative 4 would be slightly increased as compared to the proposed project, but would remain less than significant with mitigation, similar to the proposed project. Alternative 4 would result in similar impacts as the proposed project for water quality and climate change. However, Alternative 4 would result in reduced impacts for traffic, hazards, and noise as compared with the proposed project.

5.9 IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project/No Development Alternative (Alternative 1) would be environmentally superior to the proposed project because the direct physical effects of the proposed project would not occur with Alternative 1. If there were no changes to the existing conditions on site, there would be no increase in construction traffic, noise, or air emissions, and the significant effects of the project would be avoided. However, Alternative 1 would not remediate the contaminated marine sediments that currently present a hazard and a nuisance condition. Therefore, the No Project Alternative would cause the environmental impacts related to the existing conditions to be perpetuated.

The No Project/No Development Alternative (Alternative 1) would be environmentally superior to the proposed project because the direct physical effects of the proposed project would not occur with Alternative 1. If there were no changes to the existing conditions on site, there would be no increase in construction traffic, noise, or GHG emissions, and the significant air quality effects of the project would be avoided. In addition, there would be no increased potential impacts related to hazards or marine biological resources. However, Alternative 1 would not remediate the contaminated marine sediments that currently present as a hazard and nuisance to water quality and the beneficial uses of San Diego Bay. Therefore, the No Project Alternative would cause the environmental impacts related to the existing conditions to be perpetuated.

If the Environmentally Superior Alternative is the No Project/No Development Alternative, the CEQA Guidelines require that "the EIR also identify an environmentally superior alternative among the other alternatives" (CEQA Guidelines section 15126.6[e][2]).

Alternatives 2, 3, and 4 would meet all the project objectives. Because the proposed project is the cleanup of contaminated sediment within the waters of San Diego Bay in conformance with the Tentative CAO, all three alternatives would have impacts similar to the proposed project in relation to the dredging activities for removal of the sediments within the remedial footprint. A smaller or less intense project would not adequately remediate the identified areas and would not implement the Tentative CAO as intended by the San Diego Water Board.

Similar to the proposed project, all three alternatives involve the mechanical dredging of debris and sediments from the Shipyard Sediment Remediation Site. All of the project impacts related to the in-water dredging phase of the project would be the same for Alternatives 2, 3, and 4.

The significant and unavoidable impacts of the proposed project include construction-related adverse air quality impacts of NO_X (which is a precursor to O_3) emissions, and construction-

related adverse cumulative air quality impacts because the SDAB is presently in nonattainment for O_3. Although Alternative 2 would result in reduced air quality emissions because landside haul trips would be eliminated, the emissions from dredging equipment and barge tugs would still exceed the daily emissions threshold for NO_x. Therefore, this Alternative would not avoid the significant and adverse impacts of the proposed project.

Based on the analysis contained in this section with regard to direct physical effects on the environment, there is no clear Environmentally Superior Alternative to the proposed project. No one alternative would eliminate the significant and adverse impacts of the proposed project.

Table 5.1 provides a comparison of the key impacts of the alternatives, and Table 5-2 provides a comparison of the project alternatives relative to the significant adverse impacts of the proposed project.

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
Traffic and Circulation	• Less than significant impacts with implementation of mitigation measures	• No change from existing conditions • No additional traffic would be generated	• Substantially less construction traffic and circulation impacts than proposed project • Does not require any mitigation related to alternative routes, proposed bikeways, or employee parking at landside staging areas	• Greater construction traffic and circulation impacts than proposed project • Does not require any mitigation related to alternative routes, proposed bikeways, or employee parking at landside staging areas	• Less construction traffic and circulation impacts than proposed project • Truck trips for removal of excess sediment still required under Alternative 4 • Does not require any mitigation related to alternative routes, proposed bikeways, or employee parking at landside staging areas
Water Quality	• Less than significant impacts related to water quality with implementation of mitigation measures	• No change from existing conditions • No improvement to existing water quality conditions	• Same as proposed project but fewer BMPs and permits required due to lack of landside operations • CAD requires additional BMPs, permitting and monitoring for construction and maintenance	• Same as proposed project • Requires additional BMPs, permitting and monitoring due to CDF construction and maintenance	• Same as proposed project • Requires additional BMPs, permitting and monitoring due to CAD/CDF construction and maintenance
Hazards and Hazardous Materials	• Less than significant impacts related to hazards and hazardous materials with implementation of mitigation measures	• No change from existing conditions • No improvement to existing hazards conditions due to contaminated sediment	• Same as proposed project but fewer mitigation measures required due to reduced landside operations	• Similar to the proposed project	• Same as proposed project
Noise	• Less than significant impacts related to noise with implementation of mitigation measures	• No change from existing conditions • No additional noise generated	• Substantially reduced landside construction noise impacts compared to the proposed project	• Similar to the proposed project	• Reduced landside construction noise impacts compared to the proposed project • Noise will be generated

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
					from landside operations and truck trips for removal of excess sediment
Marine Biology	• Less than significant impacts related to marine biological resources with implementation of mitigation measures	• No change from existing conditions • No improvement to the marine resource environment	• Same as proposed project within the remedial dredge footprint • Slightly greater impacts due to construction activities in additional water areas	• Same as proposed project within the remedial dredge footprint • Greater impacts than the proposed project due to construction activities in additional water areas and conversion of bay waters to land.	• Same as proposed project within the remedial dredge footprint • Slightly greater impacts due to construction activities in additional water areas
Air Quality	• Significant and unavoidable impacts related to NO_X emissions during construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• No change from existing conditions • No contribution to short-term or cumulative air quality emissions	• Haul truck emissions would be significantly lessened • Significant and unavoidable impacts related to NO_X emissions during in-water construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• Significant and unavoidable NO_X emissions impacts during landside construction due to construction operations • Significant and unavoidable impacts related to NO_X emissions during in-water construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• Fewer NO_X emissions impacts due to reduced landside construction operations; still may be significant and unavoidable • Significant and unavoidable impacts related to NO_X emissions during in-water construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3
Climate Change and GHG	• Less than significant impact to GHG emissions	• No change from existing conditions	• Same as proposed project	• Same as proposed project	• Same as proposed project

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
Emissions					
Meets Project Objectives?	• Meets all project objectives	• Would not satisfy any project objectives	• Meets project objectives	• Meets project objectives	• Meets project objectives
Summary Comparison of Impacts Relative to the Proposed Project	• Not applicable	• No new environmental impacts • Does not meet project objectives	• This alternative would avoid the significant project impacts related to landside construction NO_X emissions • This alternative would not avoid the significant and unavoidable impacts related to NO_X emissions during in-water construction • This alternative would not avoid the significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 • This alternative would result in reduced impacts for traffic and noise compared with the proposed project • This alternative would result in slightly greater marine biological impacts compared to the proposed project.	• This alternative would not avoid the significant and unavoidable impacts related to NO_X emissions during in-water construction • This alternative would not avoid the significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 • This alternative would result in increased impacts for traffic compared with the proposed project • This alternative would result in greater marine biological impacts compared to the proposed project. • Meets all the project objectives	• This alternative would reduce the significant project impacts related to landside construction NO_X emissions • This alternative would not avoid the significant and unavoidable impacts related to NO_X emissions during in-water construction • This alternative would not avoid the significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 • This alternative would result in reduced impacts for traffic and noise compared with the proposed project • This alternative would result in slightly greater marine biological impacts compared to the proposed project. • Meets all the project objectives

Table 5-1: Alternatives Impacts Comparison Matrix

Issue Topic	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
			• Meets all the project objectives		

BMPs = Best Management Practices
CAD = Confined Aquatic Disposal
CDF = Confined Disposal Facility
GHG = greenhouse gas
NO_X = oxides of nitrogen

Table 5-2: Summary of Alternatives/Significant Impacts

Topic	Significant Effect: Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Confined CAD Site	Alternative 3: Convair Lagoon CDF	Alternative 4: CDF with Beneficial Use of Sediments
Air Quality	• Significant and unavoidable impacts related to NO_X emissions during construction • Significant and unavoidable cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3	• No change from existing conditions	• Landside construction air quality NO_X emissions would be less than the proposed project impacts, and less than significant with implementation of mitigation measures • Cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 would remain significant and unavoidable	• Landside construction air quality NO_X emissions would be similar to the proposed project impacts. • Cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 would remain significant and unavoidable	• Landside construction air quality NO_X emissions would be less than the proposed project impacts, but could remain significant and unavoidable • Cumulative construction air quality impacts associated with the existing SDAB nonattainment status for O_3 would remain significant and unavoidable

CAD = Confined Aquatic Disposal
CDF = Confined Disposal Facility
NO_X = oxides of nitrogen
O_3 = ozone
SDAB = San Diego Air Basin

5.10 ALTERNATIVE 3: CONVAIR LAGOON CONFINED DISPOSAL FACILITY ALTERNATIVE

5.10.1 Alternative Description

5.10.1.1 Introduction

The following section provides detailed environmental information on the Convair Lagoon Confined Disposal Facility Alternative (Convair Lagoon Alternative) for the Shipyard Sediment Site. The Convair Lagoon Alternative involves a Port Master Plan Amendment and the construction of a confined disposal facility (CDF) for the placement of contaminated marine sediment dredged from the Shipyard Sediment Site.

5.10.1.2 Location

The Convair Lagoon Alternative site consists of an approximately 15.4-acre water and land area located within the San Diego Bay in the city of San Diego, California. Figure 5-1 illustrates the regional location of the Convair Lagoon Alternative site. Figure 5-2 provides a more detailed map of the alternative's site location. The site is bounded by the San Diego Bay to the south; North Harbor Drive, a greenway and the San Diego International Airport to the north; the United States (U.S.) North Harbor Drive Coast Guard Facility to the east; and a rental car parking lot to the west (Figure 5-3). The site is within the jurisdiction of the San Diego Unified Port District (District) and is located in Planning District 2 (Harbor Island/Lindbergh Field), Planning Subarea 24 (East Basin Industrial) of the 2010 Port Master Plan.

5.10.1.3 Setting and Site

Physical Setting

The Convair Lagoon Alternative site is an area of the San Diego Bay that consists of open water, submerged facilities and land.

Land Facilities. Land facilities located on the Convair Lagoon Alternative site are illustrated in Figure 5-4. These facilities are located along the periphery of the site, with the exception of the southern boundary of the site which is San Diego Bay (see Figure 5-4). Land facilities include an asphalt paved area along the northern boundary of the site, parallel to North Harbor Drive; a concrete seawall or rip-rap located along the north, east and west shorelines; and an abandoned concrete sea plane marine ramp located along the southwesterly interface between the land and water. The western and northwestern part of the site is a large rental car parking lot.

Submerged Facilities. Submerged facilities located on the Convair Lagoon Alternative site are illustrated in Figure 5-4, and include a sand cap, rock berm and storm drains. The

submerged area of the site includes an approximate seven-**acr**e sand cap that was designed to isolate sediment contamination associated with former Teledyne Ryan Aeronautical operations. In addition to the sand cap, submerged facilities on the site include a subsurface rock berm and multiple submerged storm drains. The subsurface rock berm transects the site from the northwest corner to the southeast corner in an "L" shape to contain the existing sand cap. On the northern shoreline, a 60-inch diameter storm drain, a 54-inch diameter storm drain, and two 30-inch diameter storm drains outlet into the lagoon. The two 30-inch diameter storm drains are abandoned in place and are no longer active. On the western shoreline, three smaller storm drains outlet into the lagoon.

Surrounding Areas. Areas surrounding the Convair Lagoon Alternative site are illustrated in Figure 5-3. The site is located within an urban area in the city of San Diego, California. Immediately north of the site is Harbor Drive and north of that is the San Diego International Airport. The San Diego International Airport covers 661 acres and consists of a single, 9,401 foot-long 200-foot wide east-west runway, two main terminals and a commuter terminal (SDCRAA, 2008). A greenway with a bicycle path is also located north and adjacent to the site, parallel to North Harbor Drive. Land directly west of the site is a rental car parking lot, while to the east of the site is the San Diego U.S. Coast Guard Station. The San Diego U.S. Coast Guard Station conducts Maritime Law Enforcement, Search and Rescue operations and escorts cruise and Navy ships entering and leaving the bay. The San Diego Bay and a boat anchorage area (Anchorage A-9) are located to the south of the site. Anchorage A-9 is a nine-acre water area which can accommodate approximately 30 transient craft anchored with a ground tackle, a device which prevents an anchored, waterborne vessel from moving.

Planning Setting

Port Master Plan. The Convair Lagoon Alternative site is located within Planning District 2 (Lindbergh Field/Harbor Island), Planning Subarea 24 (East Basin Industrial) of the Port Master Plan. Planning District 2 is one of the nine planning districts that are covered by the Port Master Plan (PMP) and encompasses approximately 996 acres, which consists of about 816 acres of tidelands and 180 acres of submerged tidelands. Planning Subarea 24, within Planning District 2, encompasses the entire Convair Lagoon Alternative site, as well as other land to the west of the site that is designated Industrial Business Park, and a bicycle path that extends along Harbor Drive. The PMP recommends the Industrial Business Park designated land for eventual redevelopment into a light, marine related industrial/business park land use that would allow such activities as scientific laboratories, office space, marine oriented businesses and light manufacturing plants, with some ancillary storage and warehousing where necessary.

The Convair Lagoon Alternative site, including potential staging areas, is approximately 15.4 acres in size. Within the PMP, approximately 5.0 acres of the eastern portion of the Convair Lagoon Alternative site is designated as Harbor Services (water), while the northern portion of the site (0.4 acres) is designated Harbor Services (land) The westerly portion of the

water portion of the site (5.3 acres) is designated Specialized Berthing (water) (see Figure 5-5). A small portion of the site (1.3 acres), along the southeastern boundary, is designated as Boat Navigation Corridor (water) and the western and northwestern part of the site, including the staging area, (3.4 acres), is designated as Industrial Business Park (land).

Coastal Zone. The Convair Lagoon Alternative site falls entirely within the Coastal Zone, which is regulated by the California Coastal Commission under the California Coastal Act. Pursuant to the California Coastal Act, the California Coastal Commission has approved the PMP giving the District primary authority to regulate development and to issue Coastal Development Permits for development projects consistent with the Port Master Plan. However, some District issued permits can be appealed to the California Coastal Commission and the Commission must also approve any amendments to the Port Master Plan. Implementation of the Convair Lagoon Alternative would require a Coastal Development Permit but does not constitute an appealable project under the California Coastal Act.

5.10.1.4 Background

The surrounding shoreline of Convair Lagoon was previously shallow portions of the San Diego Bay which were filled with dredge sediment. The earliest information regarding dredging and fill operations in the vicinity of the alternative site is from 1921, when the northeastern shoreline of the bay was between present-day Pacific Highway and California Street (see Figure 5-1). In the 1920s and 1930s the area north of present-day West Laurel Street and North Harbor Drive, encompassing the eastern portion of the present-day San Diego Airport, was filled with material dredged from the bay. A dredging pipeline, (later converted to a 54-inch reinforced concrete storm drain), extended from the northern portion of the filled land, south to the bay, and discharged into the Convair Lagoon. In the mid-1930s dredging operations filled the area where the San Diego U.S. Coast Guard Station is located east and adjacent to this alternative site. By 1939, a concrete pier was constructed above the previously-mentioned storm drain on the site. In the early 1940s, dredging operations filled the area west of the site. Convair Lagoon is the unfilled area between the U.S. Coast Guard Station and the filled area to the west of the site. Throughout the years, multiple improvements to the site have been constructed and removed, including additional storm drains and other piers.

On October 17, 1986, the San Diego Regional Water Quality Control Board (San Diego Water Board) Executive Officer issued "*Cleanup and Abatement Order No. 86-92 for Teledyne Ryan Aeronautical near Lindbergh Field, San Diego County*" for the discharge of polychlorinated biphenyl (PCBs), several trace metals, and volatile organic compounds to the storm drains on Teledyne Ryan Aeronautical property and to the Convair Lagoon portion of the San Diego Bay. Cleanup and Abatement Order (CAO) 86-92, as amended, required Teledyne Ryan Aeronautical to construct a sand cap on the San Diego Bay bottom in Convair Lagoon to isolate the existing sediment contamination within the lagoon from the environment.

In 1996, the PCB contamination in Convair Lagoon was remediated by the Convair Lagoon Capping Project. During the PCB remediation, the existing sub-surface rock berm was constructed (Figure 5-4) and a sand cap was placed behind the rock berm. The sand cap consisted of fill material and still exists on the site. The majority of the existing sand cap is submerged, although construction of the cap converted approximately 1,400 square feet of an intertidal area to upland. The main cap consists of several layers of materials. The first layer is a geogrid which was placed on top of the existing sediment. The second layer consists of a minimum of one-foot of gravel on top of the geogrid. The third and last layer is a minimum of two feet of sand placed on top of the gravel. The geogrid provides separation between the existing sediments and the gravel. The gravel layer is provided to prevent animals from burrowing into contaminated sediment, while the sand layer isolates the contaminated sediment and provides habitat for plants and animals. The subsurface rock berm provides containment for the main cap and acts as a physical barrier limiting the effects of erosive currents and waves. The subsurface rock berm is approximately five feet in height with 3:1 (horizontal: vertical) sideslopes and is constructed of rock riprap. The thin cap is used to transition between the main cap and the existing topography. The thickness of the thin cap at the PCB contamination boundary is equal to the thickness of the main cap and tapers shoreward to a thickness of four inches of sand over four inches of gravel on the existing sediment. The outer cap is outside the subsurface rock berm and consists of three feet of sand placed directly on top of existing sediment for a distance of 80 feet from the toe of the subsurface rock berm. Beyond 80 feet, the outer cap tapers off at a rate of natural repose of sand.

Recent bay deposits underlie the sand cap and PCB contaminated sediment. Bay deposit materials typically consist of interlayered dark gray, wet, loose, fine silty sand and silt and soft, sandy clay. Old paralic deposits underlie the bay deposits and typically consist of medium dense sand and stiff clay.

Subsequent to installation of the sand cap over the PCB contaminated sediments in Convair Lagoon, monitoring has been conducted that has discovered PCB contamination above the cap, presumably coming from the 60-inch storm drain. In response to this discovery, the San Diego Water Board issued CAO R9-2004-0258, as amended, which addresses the cleanup and abatement of wastes discharged to land at the former TDY site. According to the CAO, significant wastes discharged to soil and groundwater at the site must be identified and cleaned up, and the discharge of any wastes to Convair Lagoon and San Diego Bay must be abated. A subsequent enforcement order will be necessary to assess and cleanup wastes discharged from landside sources to the marine sediments in Convair Lagoon and San Diego Bay. The CAO states that soil and groundwater must be cleaned up and waste discharges abated prior to conducting remedial actions in Convair Lagoon and San Diego Bay to prevent potential recontamination of the marine sediments in the bay. Therefore, the Convair Lagoon Alternative would commence construction once the PCB source is eliminated.

5.10.1.5 Project Alternative Description

The following discussion describes the three major features of the Convair Lagoon Alternative: 1) Port Master Plan Amendment, 2) construction activities, and 3) post-construction operation.

Port Master Plan Amendment

Of the entire 15.4 acre site, only the 10 acre proposed fill pad area (see Figure 5-4) would be subject to the proposed Port Master Plan Amendment (PMPA) because these lands would undergo a conversion from water to land. Under the proposed PMPA, all existing water areas of the 10-acre PMPA site would be designated as Harbor Services, as illustrated in Figure 5-6, and converted to land. The Harbor Services use category identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. As illustrated in Figure 5-5**,** water areas on the existing site are designated as Harbor Services (land and water), Industrial Specialized Berthing (water), and Boat Navigation Corridor (water) under the 2010 Port Master Plan. The proposed water use changes and related acreages that would occur with approval of the Convair Lagoon Alternative PMPA are summarized in Table 5-3. Minor textual changes in the PMP would also be included in the PMPA to ensure consistency within the document. The proposed PMPA is evaluated in detail in Section 5.10.10, Land/Water Use Compatibility.

Table 5-3: Port Master Plan Amendment Land Use Acreage Changes for Convair Lagoon Alternative

Land Use Designation	Existing (acres)	Proposed (acres)	Net Change
Harbor Services (water)	**5**	**0**	**-5.0 acres**
Harbor Services (land)	**0**	**10**	**+10 acres**
Boat Navigation Corridor	**0.5**	**0**	**-0.5 acre**
Industrial Specialized Berthing	**4.5**	**0**	**-4.5**

Construction Activities

The description provided below is conceptual in nature and although design details may change, the overall concept, truck loads and construction methods would occur as described below. In addition, the conceptual design is consistent with the specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986. Construction of the Convair Lagoon Alternative is estimated to occur for a duration of approximately 15 months with the activities divided into five phases: 1) Site Preparation, 2) Containment Barrier Construction, 3) Storm Drain Outlet Extension, 4) Sediment Transport and Placement, and 5) Containment Cap Installation. The phasing of construction activities may vary somewhat depending on various factors, such as permitting limitations and availability of dredge fill materials. Each of the five construction phases is

described in detail below with material volumes for each phase is shown in Table 5-4. Table 5-5 provides a summary of the total material volume capacity available on site, upon completion of the Convair Lagoon Alternative.

As shown in Table 5-4, all five phases of construction would require 7,714 truck trips and 116 barge trips. The maximum daily truck trips that would occur during construction would be 98 truck trips per day. The average holding capacity of trucks used for the importation and exportation of materials would be approximately 12.22 cubic yards (cy), while the average holding capacity of barges used for the importation and exportation of materials would be approximately 1,250 cy. Construction staging areas are shown in Figure 5-4 and would be located on the rental car parking lot in the western part of the site. During each construction phase, the Convair Lagoon Alternative would employ approximately ten construction workers. A maximum of A short-term monitoring program would occur during all phases of construction to monitor if disturbed sediments are adequately contained and to determine that construction is occurring according to specifications.

Table 5-4: Convair Lagoon Alternative Material Volumes (by Construction Phase)

Construction Phase	Material Volume (in cubic yards)
Phase 1, Site Preparation	
Demolition	500 cy
Excavation Underneath Jetty	13,000 cy
Phase 1 Subtotal	13,500 cy
Phase 2, Containment Barrier Construction	
Jetty Aggregate Material and Placement	38,000 cy
Jetty Underlayer Material and Placement	3,000 cy
Jetty Armored Rock Material and Placement	8,000 cy
Filter Rock Material	2,000 cy
Phase 2 Subtotal	51,000 cy
Phase 3, Storm Drain Outlet Extension	
2 Storm Drain Extension Rock Barrier	2,200 cy
2 Storm Drain Energy Dissipaters	300 cy
Phase 3 Subtotal	2,500 cy
Phase 4, Sediment Transport and Placement	
Dredge from Shipyard Sediment Site	143,400 cy
Disposal to Class I landfill (Kettleman Hills)	24,737 cy
Placement in Convair Lagoon Alternative Site	121,890 cy
Phase 4 Subtotal	24,737 cy to Kettleman Hills Landfill 121,890 cy to Convair Lagoon Alternative Site
Phase 5, Containment Cap Installation	
9 inch Sand Cap	12,000 cy
3 inch Asphalt Pavement	4,000 cy
Phase 5 Subtotal	16,000 cy
Total Material Volume Placed in Convair Lagoon Alternative	**204,890 cy**

Site – (includes all construction materials and contaminated sediment)	

Table 5-5: Convair Lagoon Alternative Site Capacity Summary

Convair Lagoon Alternative Site	Material Volume
Capacity Available Upon Completion of Construction	240,000 cy
Total Material Volume proposed under Convair Lagoon Alternative (includes all construction materials and contaminated sediment)	204,890 cy
Unused Capacity	35,110 cy

Note: Sediment shrinkage and bottom consolidation are accounted for in determining the CDF capacity.

Table 5-6: Convair Lagoon Alternative Truck and Barge Trips (by Construction Phase)

Construction Phase	Truck Trips	Barge Trips
Phase 1, Site Preparation	0	0
Phase 2, Containment Barrier Construction	4,174	0
Phase 3, Storm Drain Outlet Extension	205	0
Phase 4, Sediment Transport and Placement		
Sub-Phase A: Dredging and Capping Shipyard Sediment Site	0	0
Sub-Phase B: Dewatering and Disposal	2,025	18
Sub-Phase C: Transportation and Placement	0	98
Phase 5, Containment Cap Installation.	1,310	0
Total (All Phases)	**7,714 truck trips**	**116 barge trips**

Phase 1, Site Preparation. Phase 1 of the construction would involve initial site preparation activities. This phase of construction would include the demolition and removal of the existing concrete pier, riprap, concrete mattress storm drain energy dissipaters, and the abandoned seaplane marine ramp. Removal of the pier would involve cutting the existing support piles at the approximate existing mud-level. The existing sub surface rock berm would remain undisturbed. In total, approximately 500 cubic yards (cy) of materials would be demolished. Demolished facilities would be reused on site as fill material.

In addition to demolition activities, the site would require the excavation of existing sediment in the area proposed for the containment barrier (Phase 2). To prepare the site for construction of the containment barrier, approximately three feet of existing sediment (13,000 cy) would be excavated within the footprint of the proposed barrier, consistent with the specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986. This excavated material would be

stockpiled on the adjacent rental car parking lot and then, after the containment barrier is constructed it would be reused as fill material in shallow water portions of the site.

Phase 1 construction activities would require no truck trips because all excavated and demolished materials would be reused on site as fill. Construction equipment required for Phase 1 construction would include tracked excavators (i.e., Caterpillar 350) with breaker hammers with a 10,000 pound (lb) capacity, loaders (i.e.,Caterpillar 980), dredging equipment, hydraulic pumps, and a clamshell crane. Construction activities would be conducted from the existing shoreline or from a barge with a crane.

Phase 2, Containment Barrier Construction. Phase 2 construction activities would involve the installation of a rock jetty containment barrier from the southwest corner of the San Diego U.S. Coast Guard facility shoreline to the southeast corner of the rental car lot shoreline as shown in Figure 5-4. The containment barrier would serve to contain the dredged fill material from the Shipyard Sediment Site and mitigate the migration of contaminated fill material into the bay. The barrier would extend an estimated 1,100 feet from the southwest corner of the site to the southeast corner of the site. The containment barrier would be constructed prior to the placement of the dredged fill (Phase 4) and would be designed to resist marine and earth forces. The containment barrier would be constructed with a 2:1 (horizontal: vertical) slope gradient.

The containment barrier would consist of three layers (core, underlayer and armor) placed upon the Phase 1 excavated surface below the marine floor (Figure 5-7). The core layer of the containment barrier would consist of quarry-run aggregate or similar material. The underlayer would consist of small rock and would support the armor layer. The armor rock layer would be located on the bay-side of the barrier to protect the outside of the containment barrier from wave action, boat wakes and other erosional forces. The containment barrier would include an engineered filter on the north face, consisting of graded rock or geotextile fabric. This filter would mitigate migration of fill particles into the bay due to tidal fluctuations. The filter would be approximately 7,000 square yards and would be anchored to the containment barrier with 2,000 cy of rock. A weir would be constructed on or near the containment barrier to provide a method to release site water displaced during the placement of fill at the site. The weir would consist of a low crest in the containment barrier or a pipe in the structural fill of the barrier. The weir would employ a method for sediment management, such as a turbidity curtain.

Rock and aggregate material used to construct the containment barrier would be imported from a nearby quarry. Multiple rock sizes would be imported for the armor and underlayer materials of the containment barrier. Armor rock size would be approximately three feet in size with a weight of approximately two-tons per rock; underlayer rock would be sized in proportion with the armor face rock; and the core layer would consist of import quarry-run or similar aggregate material. In total, the containment barrier would require approximately 49,000 cy of materials, including 8,000 cy of armor rock material, 3,000 cy of underlayer rock material, and 38,000 cy of core aggregate material.

The importation of containment barrier materials would require approximately 4,174 truck trips, using a 12.22 cy, ten-wheeled dump truck. Construction equipment required for the construction of the containment barrier would include dump trucks, barges, front loaders, hydraulic pumps and clamshell cranes.

Construction of the containment barrier would either occur by a placement or end dumping method. Placement construction would occur from a crane located on land adjacent to the site or from a crane located at the crest of the containment barrier. Under the placement method, armor rock layers would require individual rock placement, using a crane mounted on a barge, to promote stress distribution and uniform coverage. The placement of core rock may include bottom dumping. Alternatively, the containment barrier could be constructed using an end dumping method. End dumping would involve pushing or dumping rock materials from the western rental car lot shoreline to progressively build the containment barrier eastward without the use of a barge or crane. The end dumping construction method would require individual rock placement for armor rock. Upon completion of construction, the containment barrier would have an elevation of 12 Mean Lower Low Water (MLLW), and would have a total fill capacity of 168,000 cy.

Phase 3, Storm Drain Outlet Extension. Phase 3 of construction activities would involve the extension of the existing 60-inch diameter storm drain and the extension of the existing 54-inch diameter storm drain to the face of the containment barrier, as shown in Figure 5-4. The two 30-inch diameter storm drains that currently exist on site would not be extended because they have been abandoned and no longer discharge storm water. Storm drain extensions would require the installation of rock for support. A total of 2,200 cy of rock material would be imported for the storm drain extensions and placed using an end dumping construction method. Material would be dumped from the same trucks used to import the material. Each extended storm drain would be installed with an energy dissipater apron at the mouth of the each storm drain. Energy dissipaters would be constructed at or near the high water mark to allow for storm water discharge at high tide. Material for the new energy dissipaters would include various rock material sizes (similar to those used for the containment barrier), as well as a geotextile fabric or graded rock filter medium. Each energy dissipater would require approximately 150 cy of imported rock. Imported rock materials for the storm drain extensions and energy dissipaters would be transported by truck and would require approximately 205 truck trips. The extension of storm drains and construction of energy dissipaters would require earthwork or marine machinery, including cranes and an excavator.

Phase 4, Sediment Transport and Placement. Phase 4 of construction activities would involve three sub-phases: A) dredging and capping the Shipyard Sediment Site, B) dewatering and disposing of highly contaminated sediment, and C) transporting and placing remaining dredged sediment in the Convair Lagoon Alternative site. These sub-phases are discussed separately below.

A. Dredging and Capping Shipyard Sediment Site. Sub-phase A of Phase 4 of the Convair Lagoon Alternative includes the dredging and removal of approximately 143,400 cubic yards of contaminated sediment from the Shipyard Sediment Site. The Shipyard Sediment Site is located along the eastern shore of central San Diego Bay, extending approximately from the Sampson Street Extension on the northwest to Chollas Creek on the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west, as shown in Figure 3-1 of Chapter 3, Project Description, of this EIR. The Shipyard Sediment Site consists of marine sediments in the bottom bay waters that contain elevated levels of pollutants greater than San Diego Bay background conditions. This alternative would utilize environmental dredging which, unlike navigational or construction dredging, is performed specifically for the removal of contaminated sediment while minimizing the spread of contaminants to the surrounding environment during dredging operations.

Silt curtains and/or air curtains would be placed around the dredge area, including the dredge barges. The silt curtain would consist of a geotextiles fabric curtain with a floatation boom at the upper hem and ballast weights at the lower hem. The silt curtain would act as a physical barrier that would limit access to the portions of the site where the dredging operations are occurring. The silt curtain would also contain any resuspended particles from migrating outside of the active dredging area. Air curtains have been used successfully during the removal operations on the St. Lawrence River in Massena, NY, and the KK River in Milwaukee, Wisconsin. These air curtains were used in conjunction with silt curtains to contain re-suspended sediment but specifically to enhance worker safety and allow barges to transit into and out of the work area without the need to open and close silt curtain gates.

It is anticipated that the dredging would utilize a derrick barge equipped with a closed environmental bucket such as the Cable Arm® Environmental Clamshell in order to maintain water quality. The dredge material would be placed on material barges. All barges would be outfitted with a water recovery system to collect the water deposited on the barges during dredging operations.

Due to the presence of infrastructure, such as piers and pilings, dredging is constrained in several locations within the Shipyard Sediment Site. Therefore, contaminated areas under piers and pilings at the Shipyard Sediment Site would be remedied through subaqueous, or in-situ, capping. In-situ capping is the placement of clean material on top of the contaminated sediment. The capping material is typically clean sand, silty to gravelly sand, and/or armoring material. Effective capping requires sufficient cap thickness, careful cap placement to avoid disturbance, and maintenance to ensure cap integrity from future disturbances. Sand capping would involve the transport of capping material to the site (possibly via truck or barge) and placement of the materials over contaminated sediment. The capping operations will require a materials barge outfitted with a stone slinger truck, hoppers, and conveyors to move and place the capping materials over the contaminated marine sediments.

B. Dewatering and Disposal. Under the Convair Lagoon Alternative, approximately 21,510 cy, or 15 percent, of dredged sediment from the Shipyard Sediment Site would not qualify for placement in the Convair Lagoon Alternative CDF because of high contamination levels. This 21,510 cy of contaminated dredged sediment would be transported to land via barge and would require dewatering and transportation to a Class I landfill.

For this 21,510 cy, or 15 percent, of dredged sediment, the Convair Lagoon Alternative would require a landside sediment management site with sufficient space and access to stockpile, dewater, and transport the 21,510 cy of dredged material. Five potential staging areas have been identified and are shown in Figures 3-2 through 3-7 in Chapter 3, Project Description, of this EIR. Approximately 18 barge trips would be required to transport the 21,510 cy of dredged material to land. The 21,510 cy of dredge sediment would be off-loaded from the materials barge by an excavator and put into dump trucks for placement in a staging area or treated with cement-based reagent (pozzilonics) in the barge, then off-loaded into trucks for placement in a staging area for curing and sampling.

The staging area would require site preparation and construction of a pad. The site would be graded and compacted (if necessary) and a sealing liner would be put in place. An asphalt pad would then be constructed. The drying area would be surrounded by k-rails and sealed with foam and impervious fabric to form a confined area. The sediment would then be mixed with pozzilonics to accelerate the drying. Treatment with pozzilonics would increase the 21,510 cy of material by 15 percent, to approximately 24,737 cy. The sediment would be spread out and rotated frequently to further accelerate the drying process. The drains located in the drying area would be isolated from the rest of the storm water system at the site. If the excess water from the drying area does not meet industrial wastewater permit requirements, and cannot be discharged into the City sewage system, the water would be dealt with as contaminated waste and removed from the site by a licensed waste hauler. All collected water would be tested and disposed of in accordance with local, state, and federal requirements. After drying, soil sampling would be conducted and the 24,737 cy of material would be loaded directly onto trucks for disposal at a Class I disposal facility, most likely Kettleman Hills Landfill in Kings County, California. It is estimated that approximately 2,025 truck trips would be required to transport this sediment to the Kettleman Hills Landfill. The preferred route to Kettleman Hills Landfill in Kings County, California is via I-5 north. Trucks departing from potential Staging Areas 1 through 4 would access I-5 south via E. Harbor Drive and 28th Street; trucks departing from Staging Area 5 would access I-5 south either directly from Bay Marina Drive or from W. 32nd Street to Marina Way to Bay Marina Drive.

C. Transportation and Placement. Approximately 85 percent of the dredged material, or 121,890 cy, from the Shipyard Sediment Site would be transported by barge to the Convair Lagoon Alternative Site and placed within the submerged areas of the lagoon as hydraulic fill. The contaminated marine sediment would be transported via a barge towed by a tug boat from the Shipyard Sediment Site to the Convair Lagoon Alternative site over a distance of approximately 5 miles that would require 98 barge trips. Barges used to receive the

contaminated sediment at the Shipyard Sediment Site would transport the dredged material to the Convair Lagoon Alternative site. The contaminated sediment would be transferred from the barges to the CDF through the use of pumps, pipelines and hoses or a clamshell crane. Erosion control measures would be implemented to protect the placed sediment from wave action, boat wakes and other erosional forces. After all the contaminated sediment is placed within the containment barrier, the elevation of the site would be approximately nine feet above sea level or MLLW.

Phase 5, Containment Cap Installation. Phase 5 of the construction would involve the importation and installation of an engineered containment cap. The engineered cap would consist of 9 inches of clean sand placed over the contaminated fill material and a 3-inch layer of asphalt pavement above the clean sand to isolate the contaminated material from the community. Cap material is anticipated to be transported and placed conventionally by truck and earthwork equipment. During this phase of construction, approximately 12,000 cy of sand and 4,000 cy of asphalt would be imported to the site and placed above the contaminated sediment by unloading the sand and asphalt directly from the trucks. The importation of sand and asphalt would require approximately 1,310 truck trips, using 12.22 cy, ten-wheeled dump trucks. Construction equipment required for Phase 5 would include trucks, a grader and asphalt spreading and compacting equipment. Upon completion of the containment cap, the elevation of the site would be 10 feet MLLW and a portion of the dredge fill would remain saturated beneath sea level. The elevation transition between the existing, surrounding ground surface, which is 12 feet MLLW, would be gradual across the site and would be based on surface drainage requirements. Four storm drains would remain on site (Figure 5-4), two abandoned in-place and two discharging beyond the containment barrier, each equipped with an energy dissipater apron.

Post-Construction Operation

Upon completion of construction, the alternative would create approximately 10 acres of upland that would consist of paved, undeveloped land with an elevation of approximately 10 feet above sea level or MLLW. Additionally, the site would be designated Harbor Services (land) in the Port Master Plan. Harbor Services is a use category that identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring.

The Convair Lagoon Alternative does not include the construction or development of any buildings or structures on the converted site and no permanent dewatering would be required.

5.10.1.6 Permits and Approvals Required

Numerous federal, state and local laws, regulations and permit requirements would be applicable to the Convair Lagoon Alternative. Table 5-7 identifies potential permits and approvals that would be required for the Convair Lagoon Alternative.

Table 5-7: Potential Permits

Agency/Department	Permit	Action Associated With or Required For
Federal Agencies		
US Army Corps of Engineers	Individual/Nationwide section 404 Permit (CWA, 33 USC 1341)	Responsible for issuing section 404 permits for dredged or fill material into waters of the US (up to higher high water line in tidal waters) and into wetlands in compliance with EPA regulations.
	Section 10, Rivers and Harbors Act Permit	Regulates construction, excavation, and deposition in navigable waters (up to mean high water in tidal waters).
	Marine Protection, Research, and Sanctuaries Act of 1972, section 103	Regulates dumping and transport for dumping of material into US waters.
State Agencies		
State Water Resources Control Board, Regional Water Quality Control Board	401 Certification (CWA, 33 USC 1341, if the project requires ACOE 404 Permit)	Discharge into waters and wetlands (see ACOE section 404 Permit).
California Coastal Commission	Port Master Plan Amendment	Change in designated land use.
Local Agencies		
San Diego Unified Port District	Port Master Plan Amendment	Change in designated land use.
	Coastal Development Permit	Development within the Coastal Zone.

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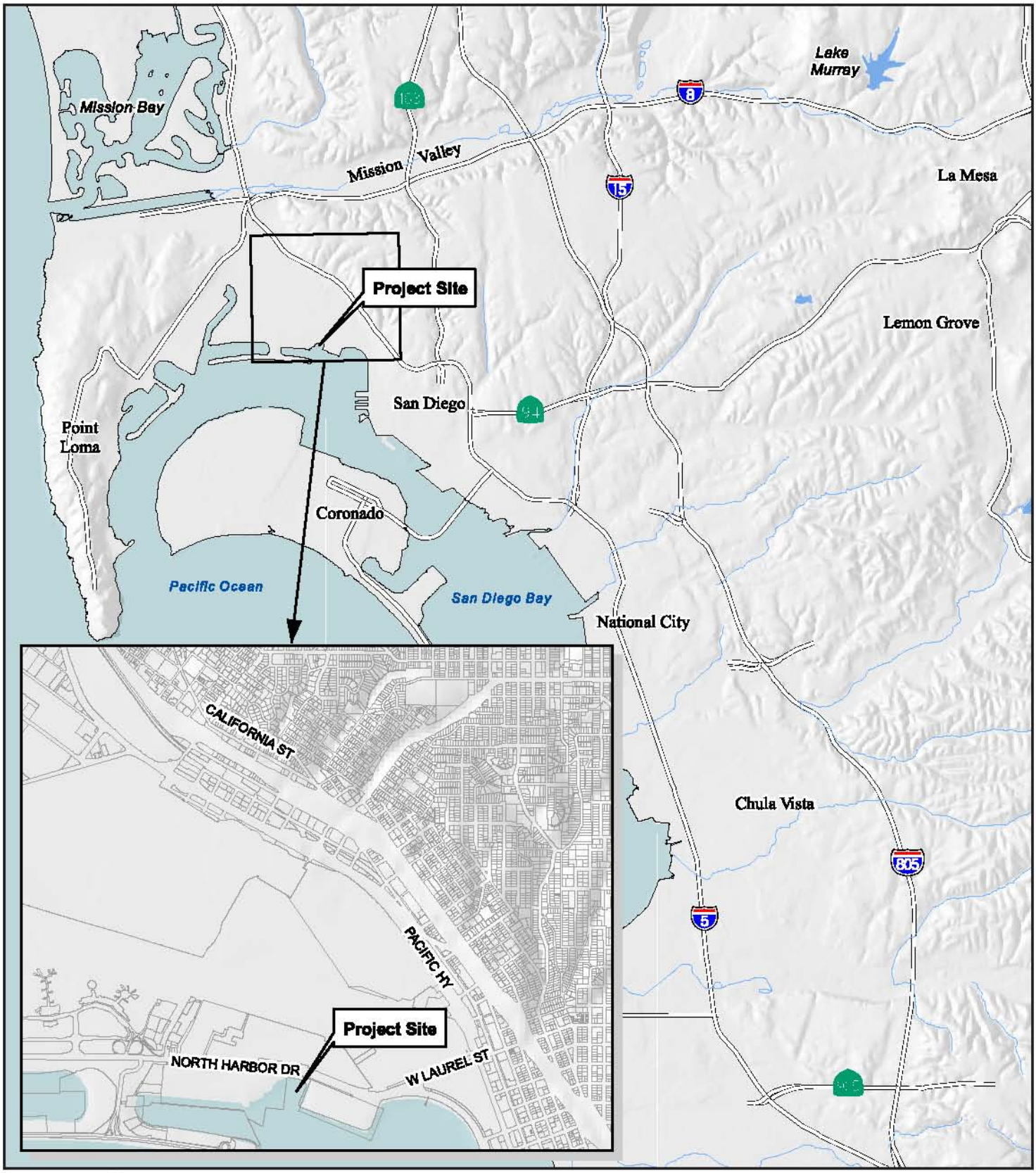

ATKINS

FIGURE 5-1

SOURCE: SanGIS 2011

Convair Lagoon Alternative
Regional Location

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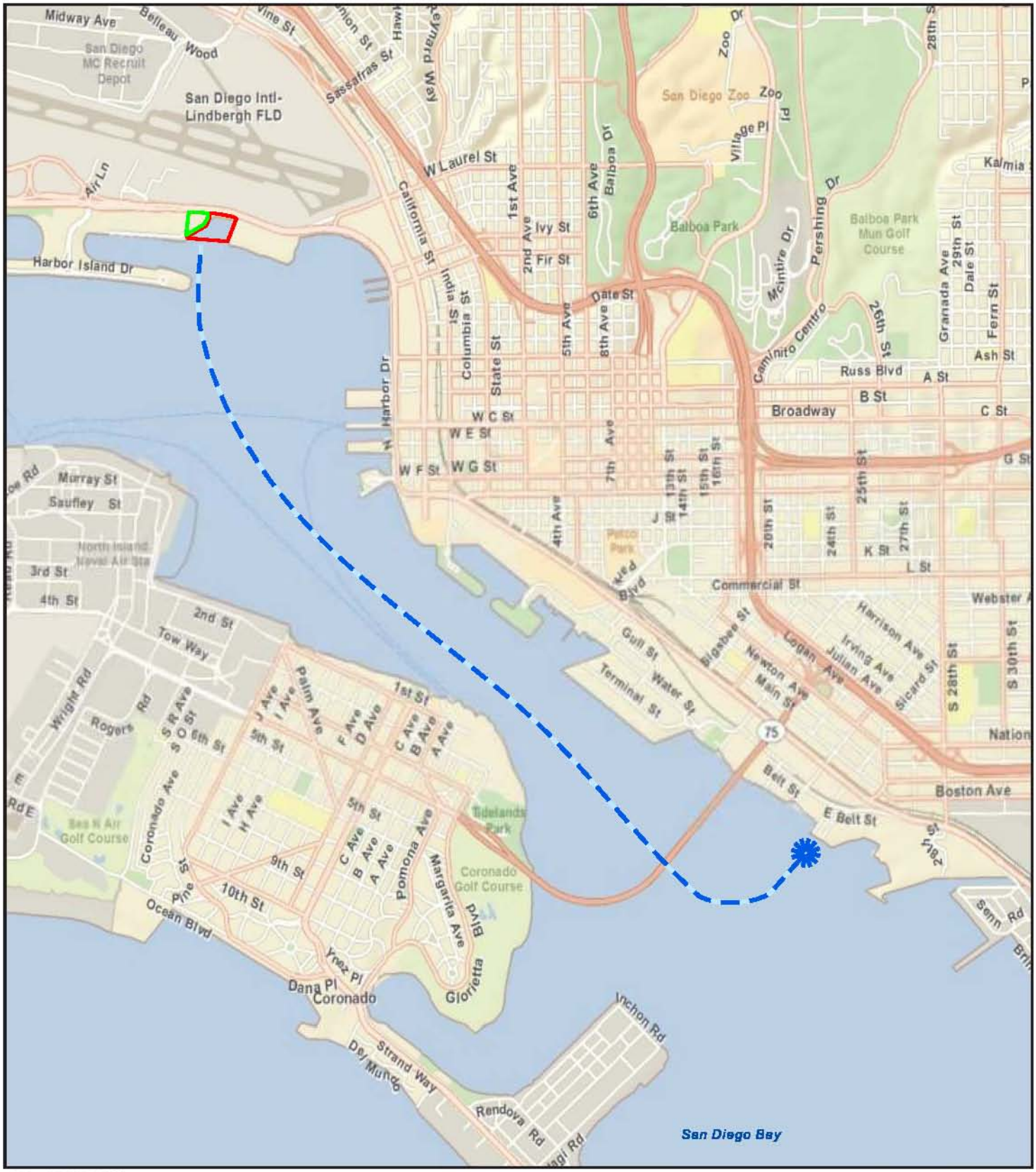

ATKINS

LEGEND

- Convair Alternative Site Boundary
- Convair Alternative Staging Area
- Approximate Barge Route

0 1,500 3,000

FEET

SOURCE: ESRI 2011

FIGURE 5-2

Convair Lagoon Alternative

Site Vicinity

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ATKINS

FIGURE 5-3

N

0 120 240

FEET

SOURCE: Aerial Imagery - Photo Date: August, 2010; (c) Google Earth, 2011

Note: Directions, dimensions and locations are approximate.

Convair Lagoon Alternative

Site Location

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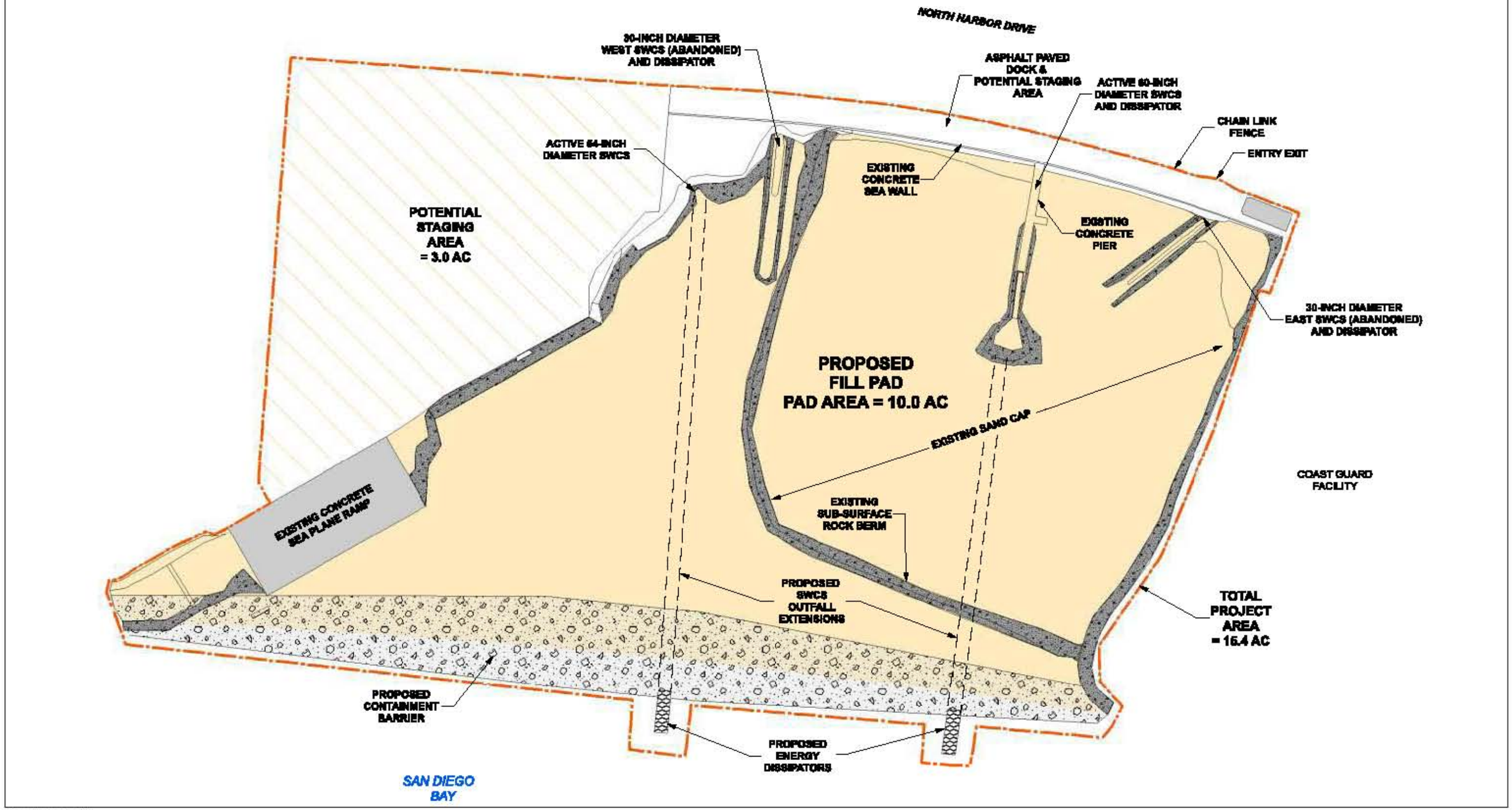

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N

0 50 100

FEET

SOURCE: Ninyo and Moore 2011

LEGEND

- Project Area
- Existing Concrete
- Proposed Fill Pad
- Existing Rip Rap
- Proposed Containment Barrier
- Proposed SWCS (Storm Water Conveyance System)

Note: Directions, dimensions and locations are approximate

FIGURE 5-4

Convair Lagoon Alternative
Conceptual Design
Existing and Proposed Facilities

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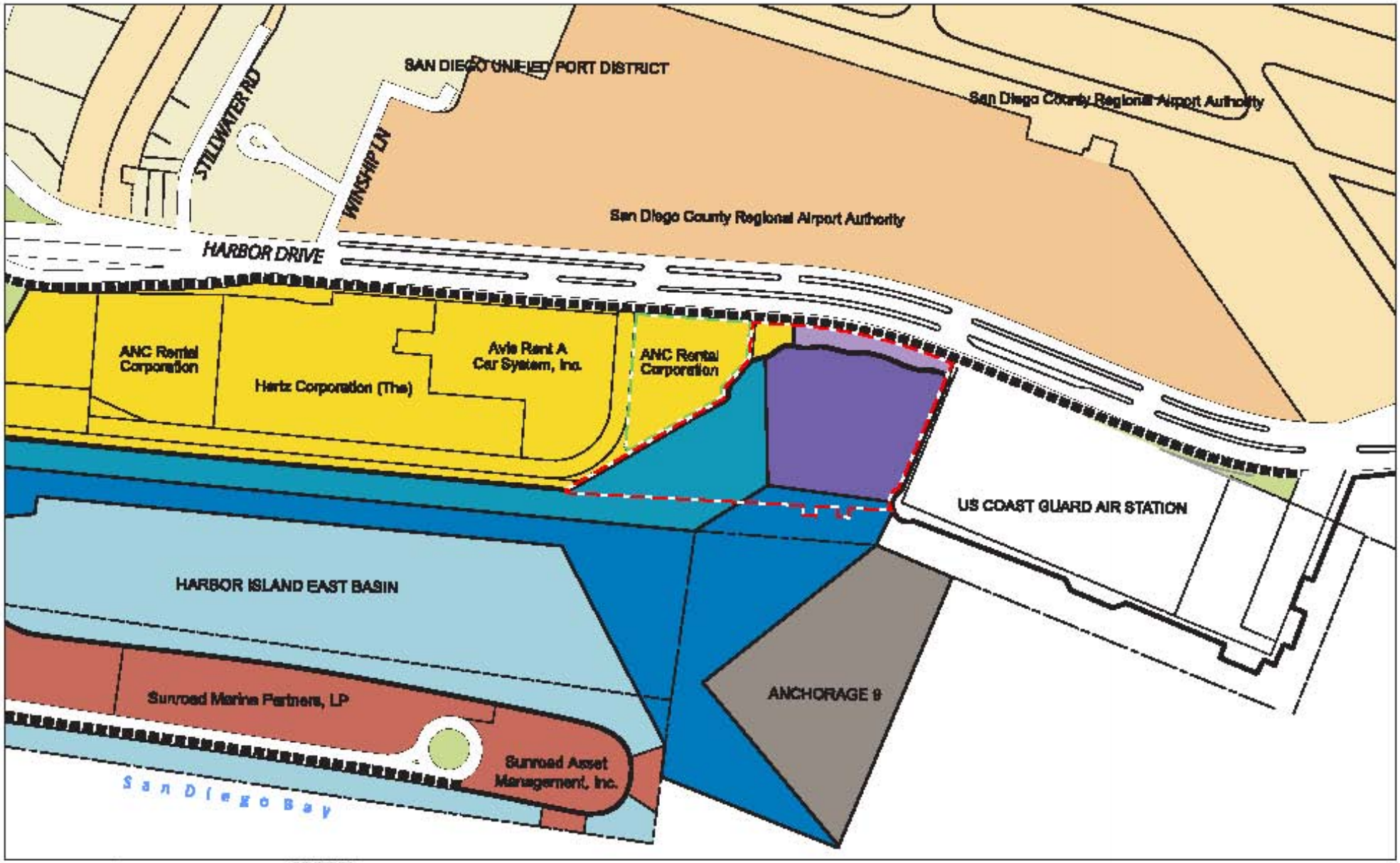
SAN DIEGO UNIFIED PORT DISTRICT
San Diego County Regional Airport Authority
STILLWATER RD
WINSHIP LN
HARBOR DRIVE
San Diego County Regional Airport Authority
ANC Rental Corporation
Hertz Corporation (The)
Avis Rent A Car System, Inc.
ANC Rental Corporation
US COAST GUARD AIR STATION
HARBOR ISLAND EAST BASIN
Sunroad Marina Partners, LP
Sunroad Asset Management, Inc.
ANCHORAGE 9
San Diego Bay
ATKINS
No Scale
SOURCE: San Diego Unified Port District 2011
LEGEND
Convair Alternative Site Boundary
Convair Alternative Staging Area
SDUPD Limits
US Pierhead Line
US Bulkhead Line
Pierhead/Bulkhead Line
Lease Line
Water Use
Open Bay
Specialized Berthing
Boat Navigation Corridor
Boat Anchorage
Harbor Services
Land Use
Commercial Recreation
Airport Related Commercial
International Airport
Aviation Related Industrial
Industrial Business Park
Promenade
Open Space
Harbor Services
Note: Directions, dimensions and locations are approximate.
Convair Lagoon Alternative
Port Master Plan Land and Water Use Map

FIGURE 5-5

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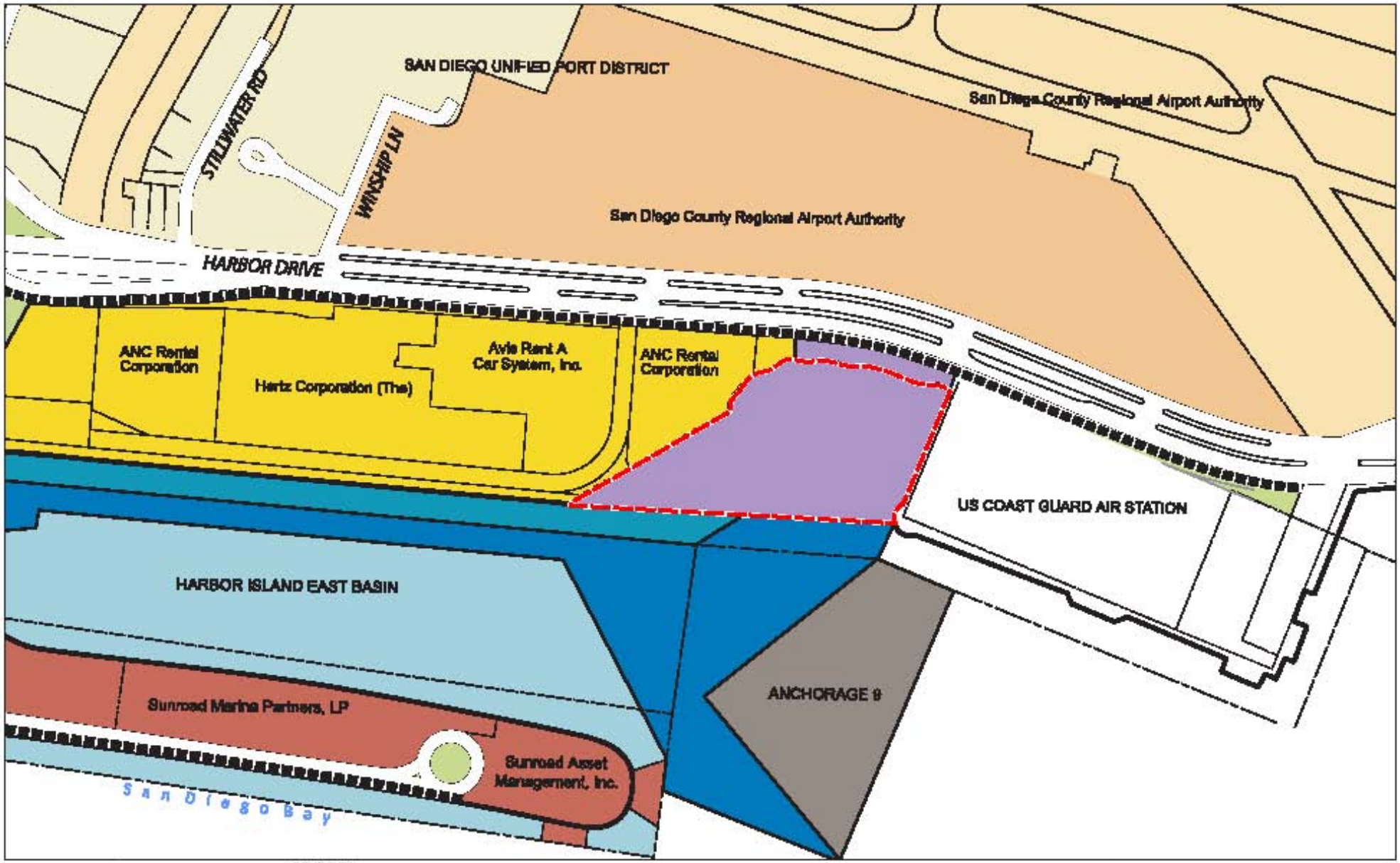

FIGURE 5-6

Convair Lagoon Alternative
Port Master Plan Amendment

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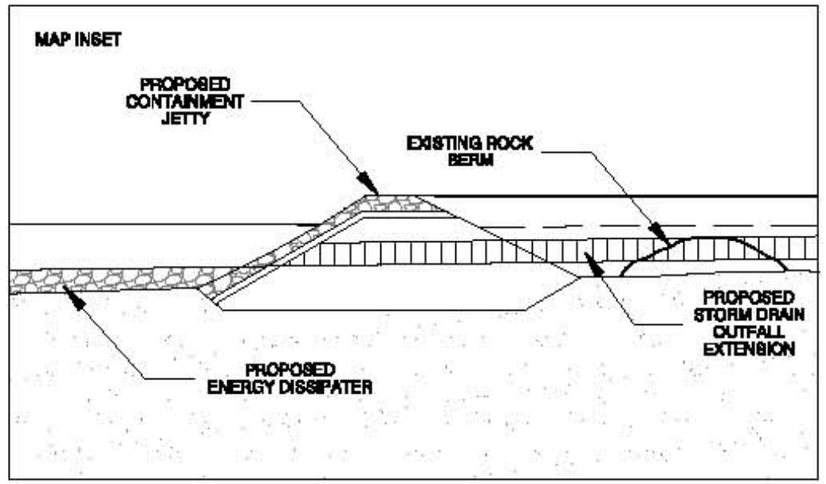

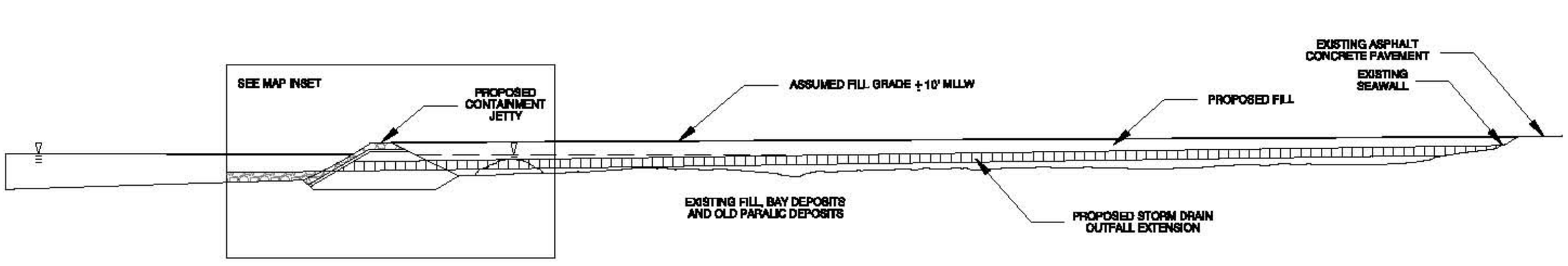

ATKINS

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Not to Scale

SOURCE: USGS 7.5' Quad - El Toro ('88)

FIGURE 5-7

Convair Lagoon Alternative

Containment Barrier Cross Section

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5.10.2 Environmental Analysis Introduction

5.10.2.1 Introduction to the Analysis

Sections 5.10.3 through 5.10.10 of Chapter 5.10 contain a discussion of the potential significant environmental effects resulting from implementation of the Convair Lagoon Alternative, including information related to existing site conditions, analyses of the type and magnitude of individual environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts.

Scope of the Analysis

Implementation of the Convair Lagoon Alternative could result in potentially significant impacts to the following environmental topics:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land and Water Use Compatibility

The Convair Lagoon Alternative would have either a less than significant impact or no impact associated with the following topics: Aesthetics, Agricultural and Forestry Resources, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation and Traffic and Utilities and Service Systems. These topics are described within Chapter 5.10.11, Other Environmental Issues, of this alternative analysis.

5.10.2.2 Format of the Environmental Analysis

Each of the eight environmental topic sections in Chapter 5.10 includes the following subsections:

Existing Environmental Setting. According to CEQA Guidelines section 15125, 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 impacts are compared. Normally, the baseline condition is the physical condition that exists when the NOP is published. The NOP for the Shipyard Sediment Site Project was published on November 11, 2009.

Regulatory Setting. This subsection provides a summary of regulations, plans, policies, and laws that are relevant to each environmental topic at the federal, state, and local levels.

Methodology. This subsection provides a summary of the methods that were used to evaluate the potential impacts occurring as a result of the Convair Lagoon Alternative.

Thresholds of Significance. Thresholds of significance are criteria used to assess whether potential environmental effects are significant. The thresholds of significance used in this analysis are primarily based upon the recommendations provided in Appendix G of the CEQA Guidelines. The threshold of significance defines the type, amount, and/or extent of impact that would be considered a significant adverse change in the environment. The thresholds of significance are intended to assist the reader in understanding how and why an EIR reaches a conclusion that an impact is significant or less than significant.

Impacts and Mitigation Measures. This subsection describes the potential environmental impacts of the Convair Lagoon Alternative and, based upon the thresholds of significance, concludes whether the environmental impacts would be considered less than significant, potentially significant or significant and unavoidable. The discussion of potential impacts is based upon the applicable threshold of significance for each issue. Where impacts are identified, mitigation measures are included to avoid or reduce the potential impact to a level below significance.

The analysis of environmental impacts considers both the construction and operational aspects associated with implementation of the Convair Lagoon Alternative. As required by CEQA Guidelines section 15126.2(a), direct, indirect, short-term, extended-term, on-site and/or off-site impacts are addressed, as appropriate, for the environmental issue being analyzed.

Less than Significant. This term is used to refer to 1) impacts resulting from implementation of the Convair Lagoon Alternative that are not likely to exceed the defined threshold of significance, and 2) potentially significant impacts that are reduced to a level that does not exceed the defined threshold of significance after implementation of mitigation measures.

Potentially Significant. This term is used to refer to impacts resulting from implementation of the Convair Lagoon Alternative that exceed the defined threshold of significance before identification of mitigation measures. A "significant effect" is defined by CEQA Guidelines section 15382 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, minerals, 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 impact are identified.

Mitigation Measures. CEQA Guidelines section 15126.4 requires an EIR to "describe feasible measures which could minimize significant adverse impacts." The 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 Analysis subsection. Mitigation measures are the specific environmental requirements for construction or operation of the Convair Lagoon Alternative consistent with the findings of this analysis.

Cumulative Impacts. CEQA Guidelines section 15130 requires that an EIR address cumulative impacts of a project when the project's incremental effect would be cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project would be considerable when viewed in connection with the effects of past, current, or probable future projects. A cumulative effect is not deemed considerable if the effect would be essentially the same whether the Proposed Project is implemented or not.

The basis for the analysis of cumulative impacts is dependent on the nature of the issue. According to CEQA Guidelines section 15130, the discussion of cumulative effects "need not provide as great a detail as is provided for the affects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness." The evaluation of cumulative impacts will be based on "a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside of the control of the agency." Present and probable future projects are addressed in this cumulative analysis, while past projects were considered as part of the existing setting and analyzed under each individual topic in Chapter 5.10. This analysis includes projects that require agency approval for an application that has been received by the reviewing agency at the time of the Draft EIR, but does not include information that became known or available after the completion of the Draft EIR.

In addition, reasonable mitigation measures for cumulatively significant impacts should be discussed; however, CEQA acknowledges, "with some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis."

Table 5-8 provides of a list of the past, present, and probable future projects within the vicinity of the Convair Lagoon Alternative known as of April 2011, which is the time of preparation of this analysis. Cumulative projects that are considered within the vicinity of the Convair Lagoon Alternative include those located in areas under the jurisdiction of the San Diego Unified Port District or the San Diego Regional Airport Authority, or in areas within a one-mile radius of the Convair Lagoon site.

Significant and Unavoidable. This term is used to refer to significant impacts resulting from implementation of the Convair Lagoon Alternative that cannot be eliminated or reduced to below significance through implementation of feasible mitigation measures.

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
1.	West Side - Terminal Project 1	San Diego International Airport (Lindbergh Field)	Expand existing Terminal 2 West with 10 new gates.	Construction timeline begins 2009 and ends 2013.
2.	West Side - Airfield Project 2	San Diego International Airport (Lindbergh Field)	Construct new aircraft parking and replacement Remain-Over-Night aircraft parking apron.	Construction timeline begins 2009 and ends 2013.
3.	West Side - Airfield Project 3	San Diego International Airport (Lindbergh Field)	Construct new apron and aircraft taxi lane.	Construction timeline begins 2009 and ends 2013.
4.	West Side - Ground Transportation Project 4	San Diego International Airport (Lindbergh Field)	Construct new second level road/curb and vehicle circulation.	Construction timeline begins 2009 and ends 2013.
5.	West Side - Ground Transportation Project 5	San Diego International Airport (Lindbergh Field)	Construct a new parking structure and vehicle circulation serving Terminal 2.	Construction timeline begins 2009 and ends 2013.
6.	West Side - Airport Facilities Project 6	San Diego International Airport (Lindbergh Field)	Utility Plan Expansion and Co-Generation Facility.	Construction timeline begins 2009 and ends 2013.
7.	West Side - Airport Facilities Project 7	San Diego International Airport (Lindbergh Field)	1,000 foot Displaced Threshold.	Construction timeline begins 2009 and ends 2013.
8.	North Side - Ground Transportation Project 1	San Diego International Airport (Lindbergh Field)	Relocate and reconfigure SAN Park Pacific Highway.	Construction timeline begins 2009 and ends 2013.
9.	North Side - Ground Transportation Project 2	San Diego International Airport (Lindbergh Field)	Construct a new access road to North Area facilities from Sassafras St./Pacific Highway intersection.	Construction timeline begins 2009 and ends 2013.
10.	North Side - Airport Support Project 3	San Diego International Airport (Lindbergh Field)	Construct new general aviation facilities including access, terminal hangers and apron on 12.4 acres.	Construction timeline begins 2009 and ends 2013.
11.	North Side - Ground Transportation Project 4	San Diego International Airport (Lindbergh Field)	Demolish the existing general aviation facilities	Construction timeline begins 2009 and ends 2013.
12.	North Side - Airfield Project 5	San Diego International Airport (Lindbergh Field)	Reconstruct Taxiway C and construct new apron hold pads and new Taxiway east of Taxiway D.	Construction timeline begins 2009 and ends 2013.
13.	Teledyne Ryan Demolition Project	2701 North Harbor Drive, adjacent to the San Diego International Airport	Removal of approximately 50 existing structures (totaling approximately one million square feet); removal and disposal of all paving materials, hazardous and contaminated demolition materials,	Expected completion date June 2012.

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
			chlorofluorocarbons; removal, replacement or relocation of underground piping and utility systems; capping storm drain and sanitary sewer laterals.	
14.	Thomas Jefferson School of Law	South side of Island Avenue between 11th Avenue and Park Boulevard	175,000 square foot law school.	Expected completion date January 2011.
15.	Commercial Fisheries Revitalization Plan	The two commercial fishing facilities on San Diego Bay: Driscoll's Wharf in America's Cup Harbor in the north bay and Tuna Harbor, at G Street Mole near downtown San Diego.	Comprehensive Plan that addresses how San Diego can support and increase commercial fishing.	Finalized in 2010.
16.	Sunroad Harbor Island Hotel	955 Harbor Island Drive, Harbor Island	The hotel, totalling approximately 117,000 square feet, would consist of up to 175 rooms, limited meeting space, common areas, and surface parking. The project would also include removal of the existing traffic circle and realignment of the road and lease lines.	Application pending. Completion date unknown.
17.	Marina Green Project	America's Cup Harbor in Shelter Island	Three buildings, a 50-slip marina, a 16,000-square foot park and a new shoreline promenade.	In progress. Completion date unknown.
18.	Lane Field Project	North side of Broadway, between North Harbor Drive and Pacific Highway	Two hotels (totaling 800 rooms), a hostel, parking facilities and retail uses on a 5.8-acre parcel formerly used as a parking lot.	Construction expected to begin in early 2013 and end in mid-2015.
19.	Main Library	Block bounded by 11th Avenue, K Street, Park Boulevard, and J Street	366,000 square foot library.	Construction schedule is unknown.
20.	North Embarcadero Port Master Plan Amendment	Area bordered by Market Street on the south, Laurel Street to the north, the railroad right of way to the east and the San Diego Bulkhead line (the bayward edge of land) to the west	The project includes amending the Port Master Plan for the North Embarcadero area to incorporate planning designation and a variety of use changes.	Construction expected to begin mid-2013 and end in mid-2018.
21.	North Embarcadero Visionary Plan Phase 1 Project	Area bordered by Market Street on the south, Laurel Street to the north, the railroad right of way to the east and the San Diego Bulkhead line (the bayward edge of land) to the west	Landscape and traffic improvements to West Broadway; Realign North Harbor Drive from B Street Pier to Navy Pier; Broadway Pier design enhancements; and Development of a public park/plaza on the Lane Field Development project site.	Undergoing project approval process and obtaining permits.
22.	Old Police Headquarters	Southeast corner of Harbor Drive and Pacific	Rehabilitation and adaptive reuse of historically designated Old Police	Construction expected to begin in early 2012

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
		Highway	Headquarters building with a mix of specialty retail, entertainment, and restaurant uses; reconfiguration with surrounding parking areas; and pedestrian access, plaza, and landscape improvements.	and end in mid 2013.
23.	Port Pavilion on Broadway Pier	Broadway Pier, intersection of North Harbor Drive and West Broadway	52,000 square foot cruise ship terminal at Broadway Pier.	Construction completed.
24.	San Diego Convention Center Phase III Expansion and Expansion Hotel Project	111 West Harbor Drive	Phase III Expansion includes: a two-story structure with varying heights up to 95 feet above grade adjacent to and southwesterly of the current facility including approximately 225,000 square feet of exhibit halls, 101,500 square feet of meeting rooms, 80,000 square feet of ballroom, 16,000 square feet of kitchen, an additional 22 truck docks, additional supporting circulation and pre-functional space, and up to 45,000 square feet of visitor-serving retail; a 35-foot wide pedestrian promenade immediately adjacent to the water's edge; a public street known as Convention Way immediately adjacent to, and inland of, the promenade; a pedestrian thoroughfare immediately adjacent to, and inland of, Convention Way; creation of approximately 5 acres of accessible public space for active and passive public use; a pedestrian bridge over Harbor Drive and rail rights-of-way connecting the existing Convention Center to downtown in the vicinity of Fourth Avenue; a Water Transportation Center, including a ticket booth, offices, public restrooms, bus drop-off, and parking. Expansion Hotel includes a podium and tower structure up to 400 ft above mean sea level containing between 250 to 500 guest rooms along with up to 50,000 square feet of banquet/conference rooms, ballrooms, restaurants, and retail shops.	Construction expected to begin in early 2013 and end in mid 2015.
25.	Ruocco Park	Area located along the waterfront west of Pacific Hwy and south of Harbor Drive and on portions of the Harbor Seafood Mart site	3.3 acres of public park/plaza areas, with landscape and aesthetic improvements such as a water feature, lawns, benches, enhanced paving, varieties of plant materials, and an outdoor sculpture. Project requires demolition of portions of the existing Harbor Seafood Mart building and reconfiguration of parking areas.	Construction is planned to begin in Spring 2011.

Table 5-8: Cumulative Projects in the Vicinity of Convair Lagoon Alternative

ID #	Project Name	Location	Description	Schedule
26.	San Diego Marriott Hotel & Marina Spa	333 West Harbor Drive	The San Diego Marriott Hotel & Marina proposes to convert a previous ground-level restaurant (formerly LC's Restaurant) into a full-service spa facility which would be utilized primarily by hotel guests.	Construction is expected to begin in mid-2012 and end in late-2012.
27.	United States Federal Courthouse	South side of Broadway between Union Street and State Street	426,000 square foot courthouse.	Construction began in May 2009 and is expected to be completed in December 2011.

Sources: SDCRAA, 2008; SDCRAA, 2009; District, 2011b

5.10.3 Air Quality

This section evaluates the potential for air quality impacts to occur from implementation of the Convair Lagoon Alternative. Potential impacts addressed in this section include consistency with applicable plans, violations of air quality standards, impacts to sensitive receptors, and objectionable odors. This section incorporates information and analyses provided in the *Air Quality Technical Report for the Shipyard Sediment Site Project Convair Lagoon Alternative,* authored by Atkins in May 2011. This report is provided as Appendix I of this EIR.

5.10.3.1 Existing Environmental Setting

Climate

Regional climate and local meteorological conditions influence ambient air quality. Convair Lagoon is located in the San Diego Air Basin (SDAB). The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. It also drives the dominant onshore circulation and helps create two types of temperature inversions, subsidence and radiation, that contribute to local air quality degradation.

Subsidence inversions occur during warmer months, as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air represents a temperature inversion that traps pollutants below it. Radiation inversions typically develop on winter nights with low wind speeds, when air near the ground cools by radiation, and the air aloft remain warm. A shallow inversion layer that can trap pollutants is formed between the two layers.

In the vicinity of the Convair Lagoon Alternative site, the nearest climatological monitoring station is located at San Diego International Airport, which is located at 3665 North Harbor Drive, adjacent to the northern border of Convair Lagoon, across Harbor Drive. Climatological monitoring stations collect temperature and precipitation data. The normal daily maximum temperature is 76 degrees Fahrenheit (°F) in August, and the normal daily minimum temperature is 48 °F in January, according to the Western Regional Climate Center (WRCC, 2011). The normal precipitation in the project area is 10 inches annually, occurring primarily from December through March.

The nearest National Oceanic and Atmospheric Administration (NOAA) meteorological monitoring station to the Convair Lagoon Alternative site is also located at the San Diego International Airport. Meteorological monitoring stations collect data such as wind direction and wind speed, as well as air temperature and precipitation. The prevailing wind direction at this monitoring station is from the west (NOAA, 2004).

Health Effects Related to Air Pollutants

Federal and state laws regulate the air pollutants emitted into the ambient air by stationary and mobile sources. These regulated air pollutants are known as "criteria air pollutants" and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide, volatile organic compounds (VOC), nitrogen oxides, sulfur dioxide, and most fine particulate matter including lead and fugitive dust (PM_{10} and $PM_{2.5}$) are primary air pollutants. Of these, carbon monoxide, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. VOCs and nitrogen oxides are criteria pollutant precursors that go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone and nitrogen dioxide (NO_2) are the principal secondary pollutants. Diesel particulate matter is a mixture of particles and is a component of diesel exhaust. The EPA lists diesel exhaust as a mobile source air toxic due to the cancer and non-cancer health effects associated with exposure to whole diesel exhaust.

Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects.

Carbon Monoxide (CO) is an odorless, colorless, and toxic gas. Because it is impossible to see, taste, or smell the toxic fumes, carbon monoxide can kill people before they are aware that it is in their homes. At lower levels of exposure, carbon monoxide causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea, and fatigue. The effects of carbon monoxide exposure can vary greatly from person to person depending on age, overall health, and the concentration and length of exposure (EPA, 2010). The major sources of carbon monoxide in the Basin are on-road vehicles, aircraft, and off-road vehicles and equipment.

Volatile Organic Compounds (VOCs) are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. VOCs consist of non-methane hydrocarbons and oxygenated hydrocarbons. Hydrocarbons are organic compounds that contain only hydrogen and carbon atoms. Non-methane hydrocarbons are hydrocarbons that do not contain the un-reactive hydrocarbon, methane. Oxygenated hydrocarbons are hydrocarbons with oxygenated functional groups attached.

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. They are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} levels and lower visibility. Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, higher concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches;

loss of coordination; nausea; and damage to the liver, kidneys, and central nervous system (EPA, 1999).

The major sources of VOCs in the SDAB are on-road motor vehicles and solvent evaporation. Benzene, a VOC and known carcinogen, is emitted into the air from gasoline service stations (fuel evaporation), motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is also sometimes used as a solvent for paints, inks, oils, waxes, plastic, and rubber. It is used in the extraction of oils from seeds and nuts. It is also used in the manufacture of detergents, explosives, dyestuffs, and pharmaceuticals. Short-term (acute) exposure of high doses of benzene from inhalation may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation. At higher levels, unconsciousness can occur. Long-term (chronic) occupational exposure of high doses by inhalation has caused blood disorders, including aplastic anemia and lower levels of red blood cells (EPA, 1999).

Nitrogen Oxides (NO_x) serve as integral participants in the process of photochemical smog production. The two major forms of nitrogen oxides 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. Nitrogen oxide acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens. Nitrogen oxide is also an ozone precursor. A precursor is a directly emitted air contaminant that, when released into the atmosphere, forms, causes to be formed, or contributes to the formation of a secondary air contaminant for which a National Ambient Air Quality Standard (NAAQS) has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more NAAQS. When nitrogen oxides and VOCs are released in the atmosphere, they chemically react with one another in the presence of sunlight to form ozone.

Ozone (O_3) is one of a number of substances called photochemical oxidants that are formed when VOCs and nitrogen oxides (both byproducts of the internal combustion engine) react with sunlight. Ozone is present in relatively high concentrations in the SDAB, and the damaging effects of photochemical smog are generally related to ozone concentrations. Ozone may pose a health threat to those who already suffer from respiratory diseases as well as healthy people. Additionally, ozone has been tied to crop damage, typically in the form of stunted growth and pre-mature death. Ozone can also act as a corrosive, resulting in property damage such as the embitterment of rubber products.

Lead (Pb) is a solid heavy metal that can exist in air pollution as an aerosol particle component. An aerosol is a collection of solid, liquid, or mixed-phase particles suspended in the air. Lead was first regulated as an air pollutant in 1976. Leaded gasoline was first marketed in 1923 and was used in motor vehicles until around 1970. The exclusion of lead from gasoline helped to decrease emissions of lead in the United States from 219,000 to

4,000 tons per year between 1970 and 1997. Even though leaded gasoline has been phased out in most countries, some, such as Egypt and Iraq, still use at least some leaded gasoline (United Nations Environment Programme, 2010). Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and physical weathering of surfaces containing lead. The mechanisms by which lead can be removed from the atmosphere (sinks) include deposition to soils, ice caps, oceans, and inhalation.

Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. The more serious effects of lead poisoning include behavioral disorders, mental retardation, and neurological impairment. Low levels of lead in fetuses and young children can result in nervous system damage, which can cause learning deficiencies and low intelligence quotients (IQs). Lead may also contribute to high blood pressure and heart disease. Lead concentrations once exceeded the state and national air quality standards by a wide margin but have not exceeded these standards at any regular monitoring station since 1982. Lead is no longer an additive to normal gasoline, which is the main reason that concentration of lead in the air is now much lower. The Convair Lagoon Alternative would not emit lead; therefore, lead has been eliminated from further review in this analysis.

Sulfur Dioxide (SO_2) is a colorless, pungent gas. At levels greater than 0.5 parts per million (ppm), the gas has a strong odor, similar to rotten eggs. Sulfuric acid is formed from SO_2 and is an aerosol particle component that may lead to acid deposition. Acid deposition into water, vegetation, soil, or other materials can harm natural resources and materials. Although SO_2 concentrations have been reduced to levels well below state and national standards, further reductions are desirable because SO_2 is a precursor to sulfates. Sulfates are a particulate formed through the photochemical oxidation of SO_2. Long-term exposure to high levels of SO_2 can cause irritation of existing cardiovascular disease, respiratory illness, and changes in the defenses in the lungs. When people with asthma are exposed to high levels of SO_2 for short periods of time during moderate activity, effects may include wheezing, chest tightness, or shortness of breath.

Particulate Matter (PM) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulate, also known as fugitive dust, are now recognized. Course particles, or PM_{10}, include that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 one-millionths of a meter or 0.0004 inch) or less. Fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns, that is 2.5 one-millionths of a meter or 0.0001 inch or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities; however, wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

Fugitive dust poses primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent (similar to sandblasting activities). Finally, fugitive dust can result in a nuisance factor due to the soiling of proximate structures and vehicles.

Diesel particulate matter is a mixture of many exhaust particles and gases that is produced when an engine burns diesel fuel. Many compounds found in diesel exhaust are carcinogenic, including 16 that are classified as possibly carcinogenic by the International Agency for Research on Cancer. Diesel particulate matter includes the particle-phase constituents in diesel exhaust. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation and exposure can cause coughs, headaches, light-headedness, and nausea. Diesel exhaust is a major source of ambient fugitive dust pollution as well, and numerous studies have linked elevated fugitive dust levels in the air to increased hospital admission, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems (OEHHA, 2001) diesel particulate matter in the SDAB poses the greatest cancer risk of all the toxic air pollutants.

Historical Air Pollutant Levels

The San Diego Air Pollution Control District (SDAPCD) operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of air pollutants and determine whether the ambient air quality meets the NAAQS and the California Ambient Air Quality Standards (CAAQS). The closest ambient monitoring station to the Convair Lagoon Alternative site is the San Diego (Beardsley Street) station. Table 5-9 presents a summary of the ambient pollutant concentrations monitored at the San Diego station during the most recent three years for which data available (2007 through 2009). The corresponding NAAQS and CAAQS are also presented in Table 5-9. The SDAB is currently designated as a nonattainment area for the state standard for PM_{10}, $PM_{2.5}$, 1-Hour and 8-Hour ozone, and the Federal 8-Hour Standard for ozone.

As shown in Table 5-9, the 8-hour ozone concentration exceeded the state standard in 2007 and 2008. The federal standard was not exceeded during this period. The federal 24-hour $PM_{2.5}$ standard was violated nine days during 2007, four days in 2008, and three days in 2009. Neither the state nor federal standards for CO, PM_{10}, NO_2, or SO_2 were exceeded at any time between 2007 and 2009. The federal annual average NO_2 standard has not been exceeded since 1978 and the state one-hour standard has not been exceeded since 1988 (SDAPCD, 2007). With one exception during October 2003, the SDAB has not violated the state or federal standards for CO since 1990 (SDAPCD, 2007).

Attainment Status

The classifications for ozone non-attainment include and range in magnitude from marginal, moderate, serious, severe, and extreme. The SDAB is currently designated as a nonattainment area for the state standard for PM_{10}, $PM_{2.5}$, 1-Hour and 8-Hour ozone, and the Federal 8-Hour Standard for ozone, as shown in Table 5-10.

Table 5-9: Air Quality Monitoring Data

Pollutant	Monitoring Station	2007	2008	2009
Ozone				
Maximum 1-hour concentration (ppm)	1110 Beardsley Street, San Diego	0.087	0.087	0.085
Days above 1-hour state standard (>0.09 ppm)		0	0	0
Maximum 8-hour concentration (ppm)		0.073	0.073	0.063
Days above 8-hour state standard (>0.07 ppm)		1	1	0
Days above 8-hour federal standard (>0.075 ppm)		0	0	0
Carbon Monoxide				
Maximum 8-hour concentration (ppm)	1110 Beardsley Street, San Diego	3.01	2.6	2.77
Days above state or federal standard (>9.0 ppm)		0	0	0
Respirable Particulate Matter (PM_{10})				
Peak 24-hour concentration ($\mu g/m^3$)	1110 Beardsley Street, San Diego	111	59	60
Days above state standard (>50 $\mu g/m^3$)		24	24	18
Days above federal standard (>150 $\mu g/m^3$)		0	0	0
Fine Particulate Matter ($PM_{2.5}$)				
Peak 24-hour concentration ($\mu g/m^3$)	1110 Beardsley Street, San Diego	69.6	42	52.1
Days above federal standard (>35 $\mu g/m^3$)		9	4	3
Nitrogen Dioxide				
Peak 1-hour concentration (ppm)	1110 Beardsley Street, San Diego	0.098	0.091	0.078
Days above state 1-hour standard (0.18 ppm)		0	0	0
Sulfur Dioxide				
Maximum 24-hour concentration (ppm)	1110 Beardsley Street, San Diego	0.006	0.007	0.006
Days above 24-hour state standard (>0.04 ppm)		0	0	0
Days above 24-hour federal standard (>0.14 ppm)		0	0	0

PPM = parts per million, $\mu g/m^3$ = micrograms per cubic meter
Source: CARB, 2011

Table 5-10: Attainment Status for the San Diego Air Basin

Pollutant	State Status	Federal Status
Ozone (1-hour)	Non-attainment	Note (1)
Ozone (8-hour)	Non-Attainment	Non-attainment(2)
Respirable Particulate Matter (PM_{10})	Non-attainment	Attainment
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment	Attainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment

Note (1) The federal 1-hour ozone standard was revoked in 2005 and is no longer in effect for the state of California.
Source: CARB, 2010b

Sensitive Receptors and Locations

The California Air Resources Board (CARB) defines sensitive receptors as residences, schools, day care centers, playgrounds, and medical facilities, or other facilities that may house individuals with health conditions that would be adversely affected by changes in air quality. Land uses surrounding Convair Lagoon generally consist of the San Diego International Airport, airport-related commercial and industrial land uses, and Coast Guard operations. These land uses are not sensitive receptors. The sensitive land uses closest to the alternative area are the residences located near the intersection of Kettner Boulevard and West Laurel Street, approximately 0.8 mile from the alternative site, and Spanish Landing Park, approximately 0.9 mile west of Convair Lagoon. Harbor Island Park is approximately 1.1 miles southwest of Convair Lagoon, but does not include play equipment and is not considered a sensitive land use.

5.10.3.2 Regulatory Setting

Federal

Clean Air Act. The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the U.S. Environmental Protection Agency (EPA) to establish NAAQS with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that greenhouse gases (GHGs), including carbon dioxide, are air pollutants covered by the CAA; however, no NAAQS have been established for GHGs.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant

concentrations considerably above these minimum standards before adverse effects are observed.

Current NAAQS are listed in Table 5-11. Areas that meet the ambient air quality standards are classified as "attainment" areas while areas that do not meet these standards are classified as "non-attainment" areas.

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP, or State Implementation Plan. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The SIP is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. Federal hazardous waste laws are generally promulgated under the RCRA. These laws provide for the "cradle to grave" regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. DTSC is responsible for implementing the RCRA program as well as California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Table 5-11: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]	Federal Standards [2]	
		Concentration[3]	Primary [3, 4]	Secondary [3, 5]
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	--	Same as Primary Standards
	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	20 µg/m	--	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 µg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	53 ppm (100 µg/m^3)[6]	Same as Primary Standard
	1-hour	0.18 ppm (470 mg/m^3)	100 ppb (188 µg/m^3)[6]	None
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	--	--
	3 Hour	--	--	0.5 ppm (1300 µg/m^3)[7]
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)[7]	--
Lead[8]	30 Day Average	1.5 µg/m^3	--	--
	Calendar Quarter	--	1.5 µg/m^3	Same as Primary Standard
	Rolling 3-Month Average[9]	--	0.15 µg/m^3	

Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more due to particles.	No Federal Standards
Sulfates	24 Hour	25 $\mu g/m^3$	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 $\mu g/m^3$)	No Federal Standards
Vinyl Chloride[8]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	No Federal Standards

[1] California standards for ozone, carbon monoxide, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded.
[2] National standards, other than 1-hour ozone, 8-hour ozone, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages, are not to be exceeded more than once a year. The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the annual fourth-highest daily maximum 8-hour concentrations is below 0.08 ppm. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile 24-hour concentrations is below 150 $\mu g/m^3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile 24-hour concentrations is below 65 $\mu g/m^3$.
[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar). All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
[5] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[6] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the EPA standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
[7] On June 2, 2010, the U.S. EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated state monitoring networks. The EPA also revoked both the existing 24-hour SO2 standard of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the new primary national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
[8] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[9] National lead standard, rolling 3-month average: final rule signed October 15, 2008.
Source: CARB, 2010a.

State

California Clean Air Act. The CAA allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. The California Clean Air Act (CCAA) was signed into law in 1988 and spelled out in statute California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The CCAA provides the state with a comprehensive framework for air quality planning regulation. Prior to passage of the CCAA, federal law contained the only comprehensive planning framework. The CAA requires attainment of state ambient air quality standards by the earliest practicable date (CARB, 2003). The CARB, a part of the California EPA (CalEPA) is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The CARB

has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

In addition to standards set for the six criteria pollutants, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles (see Table 5-11). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Further, in addition to primary and secondary AAQS, the state has established a set of episode criteria for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health.

Local

San Diego County Regional Air Quality Strategy and State Implementation Plan. The SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for the SDAB, which includes all of San Diego County. The SDAPCD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircrafts, and agricultural equipment, which are regulated by the CARB or the EPA. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the SDAPCD. Additionally, the SDAPCD, along with the CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County. These stations are used to measure and monitor ambient criteria and toxic air pollutant levels.

The 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 County RAQS were initially adopted in 1991, and is updated on a triennial basis. The RAQS were updated in 1995, 1998, 2001, 2004, and most recently in April 2009. The RAQS outline the SDAPCD's plans and control measures designed to attain the state air quality standards for ozone. The SDAPCD has also developed the SDAB's input to the SIP, which is required under the CAA for pollutants that are designated as being in non-attainment of national air quality standards for the basin.

The RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the county, to project future emissions and then establish the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County of San Diego (County) as part of the development of their general plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes

development that is greater than that anticipated in the general plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for ozone.

In addition to the RAQS and SIP, the SDAPCD adopted the *Measures to Reduce Particulate Matter in San Diego County* report in December 2005. This report is based on particulate matter reduction measures adopted by CARB. SDAPCD evaluated CARB's list of measures and found that the majority were already being implemented in San Diego County. As a result of the evaluation SDAPCD proposed measures for further evaluation to reduce particulate matter emissions from residential wood combustion and from fugitive dust from construction sites and unpaved roads.

Clean Air Program. The District implements a Clean Air Program, the goal of which is to voluntarily reduce air emissions from current District operations in advance of regulatory action through the identification and evaluation of feasible and effective control measures for each category of District operations. This comprehensive program provides a framework for reducing air emissions at the Cruise Ship Terminal, Tenth Avenue Marine Terminal and National City Marine Terminal. The 2007 Clean Air Program Report identifies control measures that can be implemented in the near-term and measures that are part of a long-term strategy to reduce air emissions, building upon regulatory and voluntary efforts. This program applies only to the operations of the District.

San Diego Air Pollution Control District Rule 55, Fugitive Dust Control. The SDAPCD requires that construction activities implement the measures listed in Rule 55 to minimize fugitive dust emissions. Rule 55 requires the following:

> i. No person shall engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60 minute period; and
>
> ii. Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be minimized by the use of any of the equally effective trackout/carry-out and erosion control measures listed in Rule 55 that apply to the project or operation. These measures are: track-out grates or gravel beds at each egress point; wheel-washing at each egress during muddy conditions; soil binders, chemical soil stabilizers,

geotextiles, mulching, or seeding; and using secured tarps or cargo covering, watering, or treating of transported material for outbound transport trucks. Erosion control measures must be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations.

Title 22 of the California Code of Regulations & Hazardous Waste Control Law, Chapter 6.5. The DTSC regulates the generation, transportation, treatment, storage and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

5.10.3.3 Methodology

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the Convair Lagoon Alternative.

Construction Emissions

Construction emissions for the Convair Lagoon Alternative construction phases are assessed using the Urban Emissions Model (URBEMIS, 2007, version 9.2.4) distributed by the CARB, with the exception of emissions from the tug boats required for barge transport. The URBEMIS 2007 model uses EMFAC 2007 emissions factors for vehicle traffic and Off-Road 2007 for construction equipment. Emissions from the Shipyard Sediment Site construction activities and tug boat emissions factors were provided by LSA Associates, Inc. in the Air Quality Analysis for the Shipyard Sediment Project, included as Appendix G to this EIR. The construction analysis includes modeling of the projected construction equipment that would be required during each phase of construction for the CDF and quantities or materials to be imported on site and exported off site. The analysis assesses maximum daily emissions from each individual phase of construction, including site preparation, jetty construction, sediment transportation and placement, and containment cap installation. To be conservative, where several construction options are being considered, the most conservative is assumed in order to analyze the worst case scenario. A complete listing of the assumptions used in the model and model output is provided in Appendix I. When construction at the Shipyard Sediment Site and Convair Lagoon construction activities are projected to overlap, construction emissions from both sites are added together to determine the total maximum daily emissions.

Operational Emissions

Operational impacts are discussed qualitatively due to the lack of operational emission sources associated with the Convair Lagoon Alternative.

5.10.3.4 Thresholds of Significance

Threshold 5.10.3.1: Consistency With Regional Plans. Based on Appendix G of the CEQA Guidelines, an impact related to consistency with applicable air quality plans would be considered significant if implementation of the Convair Lagoon Alternative would result in a conflict with, or obstruct implementation of, the RAQS or SIP.

Threshold 5.10.3.2: Conformance to Federal and State Ambient Air Quality Standards. Based on Appendix G of the CEQA Guidelines, an impact would be considered significant if the Convair Lagoon Alternative would violate any air quality standard or contribute substantially to an existing or projected air quality violation. The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related projects. Therefore, the following thresholds established in the *City of San Diego California Environmental Quality Act Significance Determination Thresholds* (January 2011) were used. The thresholds listed in the City's Guidelines are based on the SDAPCD's stationary source emission thresholds. Based on the criteria set forth in the City Guidelines, a project would have a significant impact with regard to construction or operational emissions if it would exceed any of the thresholds listed in Table 5-12. The City of San Diego does not have a threshold for $PM_{2.5}$; therefore, the EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published in 2005, which quantifies significant emissions as approximately 55 pounds per day, is used as the threshold.

Threshold 5.10.3.3: Sensitive Receptors. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant air quality impact if it would result in the exposure of sensitive receptors to substantial pollutant concentrations.

Threshold 5.10.3.4: Objectionable Odors. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant air quality impact if it would create objectionable odors that would affect a substantial number of people.

Table 5-12: City of San Diego Pollutant Thresholds

Pollutant	Pounds Per Day
Carbon monoxide (CO)	550
Nitrogen Oxides (NO_X)	250
Respirable Particulate Matter (PM_{10})	100
Fine Particulate Matter ($PM_{2.5}$)	55[(1)]
Oxides of Sulfur (SO_X)	250
Volatile Organic Compounds (VOC)	137

(1) USEPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 2005.
Source: City of San Diego, 2011

5.10.3.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.3.1: Consistency with Regional Plans. The air quality plans relevant to this discussion are the SIP and RAQS. As discussed above, the SIP includes strategies and tactics to be used to attain and maintain acceptable air quality in the Basin; this list of strategies is called the RAQS. Consistency with the RAQS is typically determined by two standards. The first standard is whether the Convair Lagoon Alternative would exceed assumptions contained in the RAQS. The second standard is whether the Convair Lagoon Alternative would increase the frequency or severity of existing air quality violations, contribute to new violations, or delay the timely attainment of air quality standards or interim reductions as specified in the RAQS.

The RAQS rely on information from the CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to forecast future emissions and then determine the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emissions projections and the SANDAG growth projections are based on population and vehicle use trends and land use plans developed by the cities and the County as part of the development of the County's and cities' general plans. As such, projects that propose development consistent with, or less than, the growth projections anticipated by a general plan would be consistent with the RAQS. For this alternative the Port Master Plan is the document governing future land use that was considered as part of SANDAGs projections.

The proposed PMPA would result in changes to the 10 acres of water use designations on the site. Under the proposed PMPA, all existing water areas of the Convair Lagoon Alternative site would change their use designation to Harbor Services (land), as illustrated in Figure 5-6. The Harbor Services use category in the PMP identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. As illustrated in Figure 5-5**,** the area within the proposed PMPA boundary would be designated as Harbor Services (water)(5 acres), Industrial Specialized Berthing (water) (4.5 acres), and Boat Navigation Corridor (water) (0.5 acre). The following provides a discussion of each of the land use designation changes and their consistency with the RAQS.

The change is land use designation from Harbor Services (water) to Harbor Services (land) would not result in a change that would affect SANDAG growth projections, because the description of uses allowed for this designation is the same whether it applies to water or land uses in the Port Master Plan.

The change in designation from Industrial Specialized Birthing (water) to Harbor Services (land) would change the allowable uses for this 4.5 acre area of the Port Master Plan from a variety of marine related commercial and industrial uses, such as ship building and repair,

water taxi, excursion and ferry craft, commercial fishing boat berthing, and other marine-related uses, to the proposed Harbor Services (land) designation which would only allow maritime services and harbor regulatory activities of the District, including remediation and monitoring. The proposed land use designation would therefore allow less intense development because marine services under the proposed Harbor Services designation would only allow service related activities, whereas the Industrial Specialized Birthing would allow more intense industrial and commercial related water uses. Therefore this change in land use designation would not result in development that would be greater than the growth projections developed by SANDAG.

The last land use designation that would be changed as part of the project would be the change from the 0.5-acre Boat Navigation Corridor designation (water) to Harbor Services (land). The existing designation is a water category for those water areas delineated by navigational channel markers or by conventional waterborne traffic movements. This category does not allow any land use development that would be part of the SANDAG's growth projections, whereas the proposed Harbor Services (land) designation would allow marine services development. However, the marine services use is less intense than the Industrial Specialized Birthing (water) designation that will also be changed to Harbor Services (land). Therefore the 0.5 acre increase in development intensity associated with the change from Boat Navigation Corridor is offset by the less intense development associated with the change from Industrial Specialized Birthing (water). The end result is that the proposed PMPA would be consistent with the SANDAG growth projections used in developing the RAQS.

The second standard is whether the Convair Lagoon Alternative would increase the frequency or severity of existing air quality violations, contribute to new violations, or delay the timely attainment of air quality standards or interim reductions as specified in the RAQS. This standard applies to long-term project operational emissions. Because nearly all of the Convair Lagoon Alternative generated air pollutant emissions are associated with short-term construction activities, this standard would not apply to this alternative.

Threshold 5.10.3.3: Impacts to Sensitive Receptors. CARB defines sensitive receptors as residences, schools, day care centers, playgrounds, and medical facilities, or other facilities that may house individuals with health conditions that would be adversely affected by changes in air quality. The two primary emissions of concern regarding health effects for land development are carbon monoxide and diesel particulates.

Carbon Monoxide Hotspots. Carbon monoxide is the criteria pollutant that is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere. Long-term adherence to ambient air quality standards is typically demonstrated through an analysis of localized carbon monoxide concentrations. Areas of vehicle congestion have the potential to create carbon monoxide hot spots. These hot spots typically occur at intersections where vehicle speeds are reduced and idle time is increased.

Intersections that tend to exhibit a significant carbon monoxide concentration typically operate at level of service (LOS) D or worse.

The Convair Lagoon Alternative would result in a temporary increase in vehicle trips on local roads during construction. However, similar to the Shipyard Sediment Site Project, construction of the Convair Lagoon Alternative would not change the number of long-term off-site vehicle trips. Upon completion of construction, the Convair Lagoon Alternative would consist of an undeveloped, above-ground parcel of land. No permanent traffic would occur from operation of the Convair Lagoon Alternative. Occasional vehicle trips for monitoring, maintenance, or repair of the cap would not impact the level of service of local intersections and would not result in a carbon monoxide hotspot. Therefore, no significant CO contributions would occur in the project vicinity.

Toxic Air Contaminants, Diesel Particulate Matter. Diesel trucks and other diesel engines are sources of diesel particulate matter. Similar to the Shipyard Sediment Site Project, construction of the CDF would require the use of heavy construction equipment and up to approximately 100 one-way diesel truck trips per day. Construction emissions would be temporary and would not result in a long-term increase in exposure to TAC emissions. Additionally, the LSA report included a health risk assessment of truck trips associated with the Shipyard Sediment Site Project. The Proposed Project would also result in a maximum of 100 truck trips per day and would result in greater total truck trips than the Convair Lagoon Alternative because all of the contaminated sediment would be transported by truck. The health risk assessment results indicated that the truck trips associated with the Shipyard Sediment Site project would not substantially increase cancer, chronic or acute health risks (LSA 2011). Following construction, the sand cap would not require diesel trucks for maintenance of the cap. Therefore, because the Proposed Project does not represent a health risk with respect to diesel particulate matter and the Convair Lagoon Alternative will result in fewer truck trips than the Proposed Project, diesel particulate matter emissions would be a less than significant health risk.

Toxic Air Contaminants, Contaminated Sediment. Mercury, zinc, copper, PAHs and PCBs bind to sediment and may be introduced to the air as part of dust (NOAA, 1996; ATSDR, 1996, 2001, 2004, and 2005). Therefore, if the contaminated sediment would be disturbed so that fugitive dust particles would be released into the air, exposure to these pollutants may occur. However, similar to construction activities for the Proposed Project, the Convair Lagoon Alternative would involve transport and placement of wet material. Similar to the Proposed Project, up to 15 percent of the dredged contaminated sediments would require dewatering prior to being transported to a landfill. The drying area would be surrounded by k-rails and sealed with foam and impervious fabric to form a confined area. As a result, little fugitive dust is expected to be generated by these operations (LSA 2011). In addition, the Convair Lagoon Alternative CDF includes a sand and asphalt cap to prevent contaminated sediment near the surface from becoming fugitive dust particles that would be released into the air following construction.

Additionally, construction activities would include several safeguards intended to protect water quality that would also minimize the potential release of contaminants during activities that would disturb the sediment. Silt and/or air curtains would be placed around the barges during barge loading operations, and unloading activities would utilize enclosed pipes or clamshell cranes to unload the sediment into the CDF. These measures would minimize the potential for sediment to be released into an area where the sediments have the potential to dry and become airborne. Transport and handling of the contaminated sediment would also be required to comply with numerous federal, state and local regulations that require strict adherence to specific guidelines regarding the use, transportation, and disposal of hazardous materials, including RCRA, which provides the 'cradle to grave' regulation of hazardous wastes, and CCR Title 22, which regulates the generation, transportation, treatment, storage and disposal of hazardous wastes. Therefore, potential exposure of sensitive receptors to air pollutants from transportation and handling of the contaminated sediment would be less than significant.

Toxic Air Contaminants, Stationary Sources. Stationary sources of TAC emissions identified in CARB's Air Quality and Land Use Handbook (2005) are freeways, rail yards, ports, refineries, dry cleaners, and large gas dispensing facilities. The Convair Lagoon Alternative would consist of an undeveloped, above-ground parcel of land. It would not result in a source of stationary TAC emissions. Additionally, the Convair Lagoon Alternative does not propose any new sensitive land uses. Therefore, the Convair Lagoon Alternative would not expose any sensitive receptors to a substantial pollutant concentration and impacts would be less than significant.

Potentially Significant Impacts

Threshold 5.10.3.2: Conformance to Federal and State Ambient Air Quality Standards.

Construction. Air pollutant emission sources during CDF construction would include exhaust and particulate emissions generated from construction equipment, tug boat operations during sediment transport, and truck trips to transport imported material from the Convair Lagoon site. As discussed above, construction of the Convair Lagoon Alternative is estimated to occur over a duration of approximately 15 months and would consist of five phases: 1) Site Preparation; 2) Containment Barrier Construction; 3) Storm Drain Outlet Extension; 4) Sediment Transport and Placement; and 5) Containment Cap Installation. Dump trucks with a capacity of 12.22 cubic yards (CY) were assumed for the importation and exportation of materials for all phases of construction (LSA 2011). During each construction phase, the Convair Lagoon Alternative would employ approximately ten construction workers. It is assumed that each worker would generate four trips per day, for a total of 40 average daily worker trips. Construction would occur Monday through Friday for eight hours during normal working hours. The phase-specific assumptions used to determine the emissions of each of these five construction phases are described below.

The Convair Lagoon Alternative would also require the construction activities associated with the preparation of the Shipyard Sediment Site for dredging, and dredging operations. Additionally, construction of a landside pad, pad operations, and covering of sediment would occur under the Convair Lagoon Alternative to prepare 15 percent of the sediment for disposal at the Kettleman Hills Landfill. All assumptions and calculated emissions associated with these construction phases are provided in the *Air Quality Analysis, Shipyard Sediment Project, California Regional Water Quality Control Board, San Diego Region* (LSA, 2011), included as Appendix G to this EIR.

Phase 1: Site Preparation. This phase of construction would include the demolition of the existing concrete pier, riprap, concrete mattress energy dissipaters, and the abandoned seaplane marine ramp. Excavation for the containment barrier is part of site preparation; however, it would occur concurrently with containment barrier construction. Therefore, emissions from excavation activities are addressed below under Phase 2. Removal of the pier would involve cutting the existing support piles to the approximate existing mud-level. In total, approximately 500 CY of materials would be demolished. Demolished facilities would be reused on site as fill material. Demolition would take approximately two months to complete. Demolition would be conducted from the existing shoreline using tracked excavators with breaker hammers, and loaders. Table 5-13 shows the maximum daily emissions that would occur from site preparation in comparison with the thresholds of significance. As shown in Table 5-13, site preparation related emissions would be below the significance thresholds.

Table 5-13: Site Preparation Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	19	38	5	0	2	2
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Phase 2: Containment Barrier Construction. Excavation for the containment barrier jetty would occur concurrently with construction of the barrier and would take approximately four months. To prepare the site for construction of the containment barrier, approximately three feet of existing sediment would be excavated within the footprint of the proposed barrier for a total of approximately 13,000 CY of excavated material. This excavated material would be stockpiled on the adjacent rental car parking lot and reused on site as fill material in shallow water portions of the site. The excavated material would be removed by dredging equipment from the shoreline, either hydraulically by pumped pressure, or by crane and clamshell. Based on the air quality analysis prepared for the Port of Los Angeles Channel Deepening

project (Port of Los Angeles, 2009), use of a crane and clamshell would be the worst-case scenario in this situation and is assumed for this analysis. Equipment would consist of a main hoist that consists of the crane and clamshell, and two large generators to remove the material and stockpile it in the rental car parking lot. Subsequent to completion of the containment barrier this material would moved to the CDF.

Rock and aggregate material used to construct the containment barrier would be imported from a nearby quarry located approximately 15 miles from the Convair Lagoon Alternative site. In total, the containment barrier would require the import of approximately 49,000 CY of materials, including 8,000 CY of armor rock material, 3,000 CY of underlayer rock material, and 38,000 CY of core aggregate material. The containment barrier would include an engineered filter on the north face, consisting of graded rock or geotextile fabric. The filter would be approximately 7,000 square yards and would be anchored to the containment barrier with 2,000 CY of imported rock. The jetty would also include two energy dissipaters for the extended storm drains, which would require 150 CY of imported material each. Therefore, a total of 51,300 CY would be imported during this phase. A weir would be constructed and would consist of a low crest in the containment barrier or a pipe in the structural fill of the barrier.

Construction of the containment barrier would occur using either the placement method or the end dumping method. Placement construction is considered the worst case scenario because it would require use of a barge and a crane, which would require towing by a tug boat. The crane would be used from both the land side for movement of material into a barge and from the barge for placement of rock and other material associated with the confinement barrier. Armor rock layers would require individual rock placement, using a crane mounted on a barge, to promote stress distribution and uniform coverage. The placement of core rock may include bottom dumping. It is assumed one barge would be used and the tug boat would operate for eight hours. Other construction equipment required for the construction of the containment barrier would include a front loader, hydraulic pumps, and cranes.

Table 5-14 shows the maximum daily emissions that would occur from excavation and jetty construction in comparison with the thresholds of significance. As shown in Table 5-14, related emissions would be below the significance thresholds.

Excavation and construction of the containment barrier may overlap with site preparation at the Convair Lagoon. Table 5-15 shows the maximum daily emissions that would occur from concurrent site preparation and containment barrier construction at Convair Lagoon. As shown in this table, simultaneous site preparation, excavation, and construction of the containment barrier at the Convair Lagoon would not exceed any significance thresholds.

Table 5-14: Barrier Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	NO_X	VOC	SO_X	PM_{10}	$PM_{2.5}$
Excavation and Import and Export of Material	30	92	7	0	23	7

Installation of Jetty	22	28	4	0	2	1
Tug Boat Operation	15	81	3	1	3	2
Sum of Barrier Construction Emissions	*67*	*201*	*14*	*1*	*28*	*10*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011 See Appendix I for data sheets.

Table 5-15: Convair Lagoon Site Preparation and Containment Barrier Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	19	38	5	0	2	2
Containment Barrier Construction	67	201	14	1	28	10
Total Phase 1 and Phase 2 Emissions	*86*	*239*	*19*	*1*	*30*	*12*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Phase 3: Storm Drain Outlet Extension. Extension of two existing on-site storm drains to the face of the containment barrier would take two months and would occur concurrently with construction of the jetty. Extension would require installation of a gravel rock bed to support the storm drains. A total of 2,200 CY of material is assumed to be imported and placed using the end dumping construction method. The extension of storm drains and construction of energy dissipaters would require earthwork or marine machinery, including cranes and an excavator. According to the EPA, Category 1 marine equipment, which typically includes non-locomotive engines such as construction equipment, uses engines that are similar to land-based large earth moving machines (EPA, 1999). Therefore, land-based construction equipment including a grader and backhoe are used to estimate marine equipment emissions. Table 5-16 shows the maximum daily emissions that would occur from extension of the storm drains in comparison with the thresholds of significance. As shown in Table 5-16, storm drain extension emissions would be below the significance thresholds.

Table 5-16: Storm Drain Extension Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Material Import	1	3	0	0	1	1
Construction of Rock Containments	22	28	4	0	2	1
Sum of Storm Drain Extension Emissions	*23*	*31*	*4*	*0*	*3*	*2*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Storm drain extension may occur concurrently with the end of excavation and construction of the containment barrier at the Convair Lagoon. Table 5-17 shows the maximum daily

emissions that would occur from concurrent storm drain extension and containment barrier construction at Convair Lagoon. As shown in these tables, simultaneous excavation and construction of the containment barrier and storm drain extension would not exceed any significance thresholds.

Table 5-17: Storm Drain Extension and Containment Barrier Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Storm Drain Extension	23	31	4	0	3	2
Containment Barrier Construction	67	201	14	1	28	10
Total Phase 2 and Phase 3 Emissions	*90*	*232*	*18*	*1*	*31*	*12*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: LSA, 2011

Phase 4: Sediment Transport and Placement. Phase 4 of construction would involve the transport and placement of approximately 121,890 CY of contaminated marine sediment dredged from the Shipyard Sediment Site. It is assumed that the transport and placement phase would take six months. Dredged contaminated marine sediment from the Shipyard Sediment Site Project would be transported to the Convair Lagoon Alternative site via barges and placed within the submerged areas of the lagoon as hydraulic fill. The contaminated marine sediment would be transported via barges towed by 1,650 horsepower tug boats from the shipyard area to the Convair Lagoon Alternative site. It is assumed that a maximum of four tug boats and barges would be required per day and that each of the tug boats would be operating for eight hours per day, which is consistent with the assumptions used for the proposed Shipyard Sediment Site Project. The contaminated sediment would be transferred from the barges to the CDF through the use of pumps, pipelines and hoses, or clamshell cranes. For this phase of construction the use of pumps represents the worst case scenario based on information provided in the *Final EIS for the Proposed Homeporting of Additional Surface Ships at Naval Station Mayport, Florida*. This EIS identified offloading dredged sediment from barges, using pumps that would be powered by a 50 horsepower diesel engine, with two pumps required per barge (NAVFAC, 2008). In addition to the sediment placed in the CDF, this alternative includes approximately 24,737 CY of sediment that would be hauled by truck from the Shipyard Sediment Site dewatering area to Kettleman Hills Landfill, located approximately 480 miles round trip from the dewatering area.

The sediment from the Shipyard Sediment Site may include elevated levels of copper, mercury, zinc, PAHs, and PCBs (LSA 2011). PAHs are not VOCs (ATSDR 1996); therefore, heavy metals and PAHs in the sediment are not criteria pollutants. Some PCBs may exist as vapor; however, in water PCBs bind strongly to organic particles and bottom

sediments (ATSDR, 2001). Therefore, the PCBs associated with the wet shipyard sediment would be bound to the sediment and would not result in additional VOC emissions. The potential for sensitive receptors to be exposed to these pollutants is discussed in Section 5.10.3.5.1, Threshold 5.10.3.3, Impact to Sensitive Receptors.

Table 5-18 shows the maximum daily emissions that would occur from the transfer and placement of sediment in comparison with the thresholds of significance. As shown in Table 5-18, all emissions would be below the significance thresholds, with the exception of emissions of nitrogen oxides.

Table 5-18: Sediment Transport and Placement Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Tug Boat Operations	61	325	13	5	10	10
Material Placement	35	40	7	0	3	2
Kettleman Hills Landfill Disposal Truck Trips	54	155	11	0	7	6
Sum of Phase 4 Emissions	*150*	***520***	*31*	*5*	*20*	*18*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011. See Appendix I for data sheets.

Sediment transport and placement of the contaminated sediment in the CDF would occur concurrently with construction activities at the Shipyard Sediment Site. Site preparation would occur prior to dredging and pad construction activities. However, dredging would potentially overlap with landside pad construction and operation, and covering of the sediment near structures. The total maximum daily emissions that would result from sediment transport and placement in the CDF concurrently with the Shipyard Sediment Site preparation are shown in Table 5-19. The total maximum daily emissions that would result from sediment transport and placement concurrently with Shipyard Sediment Site dredging, pad construction and operation, and covering of sediment are shown in Table 5-20. As shown in these tables, emissions of nitrogen oxides would exceed significance thresholds during any phase of Shipyard Sediment Site construction concurrent with sediment transfer and placement in the CDF.

Table 5-19: Convair Lagoon Sediment Transfer and Placement and Shipyard Sediment Site Debris and Pile Removal Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Sediment Transport and Placement	150	**520**	31	5	20	18
Debris and Pile Removal	54	148	8	5	5	5
Total Emissions	*204*	***668***	*39*	*10*	*25*	*23*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011 See Appendix I for data sheets.

Table 5-20: Sediment Transport and Placement and Shipyard Sediment Site Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Sediment Transport and Placement	150	**520**	31	5	20	18
Dredging of Shipyard Sediment Site[(1)]	10	16	1	4	1	1
Landside Operations – Pad Construction	83	164	14	20	9	8
Landside Operations – Operation[(1)]	20	39	3	7	2	2
Covering Sediment Near Structures	31	105	6	4	4	4
Total Emissions	*294*	***844***	*55*	*40*	*36*	*33*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

[(1)] These emissions do not include the tug boat emissions and truck trips associated with sediment transport for the Shipyard Sediment Site Project because these trips would not occur under the Convair Lagoon Alternative. Barge and truck haul trip emissions that would occur under the Convair Lagoon Alternative are included in the emissions in Table 5-18.
Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: LSA, 2011

Phase 5: Containment Cap Construction. Containment cap construction would involve the import and installation of a one-foot thick containment cap consisting of sand and asphalt. This construction phase would have a duration of approximately four months. The engineered cap would consist of clean sand placed over the contaminated fill material, then paved with asphalt, to isolate the contaminated material from the community. During this phase of construction, approximately 12,000 CY of sand 4,000 CY of asphalt would be imported to the site and placed above the contaminated sediment by unloading the sand directly from the trucks. Construction equipment required for Phase 5 would include trucks and earthwork equipment such as a graders and loaders. Following placement of the sand cap, the cap would be paved with asphalt. Table 5-21 shows the maximum daily emissions

that would occur from the construction of the cap in comparison with the thresholds of significance. As shown in Table 5-21, all cap construction emissions would be below the significance thresholds.

Table 5-21: Containment Cap Construction Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Import of Material	3	9	1	0	1	1
Construction of Cap	25	30	4	0	2	2
Paving	15	11	3	0	1	1
Sum of Emissions	*43*	*50*	*8*	*0*	*4*	*4*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix I for data sheets.

Summary. None of the individual phases of construction would exceed the significance thresholds for any pollutant, with the exception of the sediment transfer and placement phase. Sediment transfer and placement would exceed the significant thresholds for nitrogen dioxide. Additionally, this phase of construction would occur concurrently with construction activities at the Shipyard Sediment Site, which would result in additional nitrogen oxide emissions. Therefore, this impact would be potentially significant.

Operational. Upon completion of construction, the site would consist of undeveloped land with an elevation of approximately 10 feet MLLW. The Convair Lagoon Alternative does not include the development of any buildings or structures on the converted site and no permanent dewatering would be required. Therefore, the CDF does not propose any stationary sources of criteria air pollutants. Occasional vehicle trips may be required for monitoring, maintenance, and, repair of the cap, which would require minimal vehicles trips and equipment. Therefore, these activities would not result in emissions that would exceed significance thresholds. Operational emissions associated with the CDF would be less than significant.

Threshold 5.10.3.4: Objectionable Odors. Construction associated with implementation of the Convair Lagoon Alternative could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. According to the Ventura County Air Pollution Control District (VCAPCD), stationary land uses that generate objectionable odors may create a nuisance to receptors up to two miles away from the source (VCAPCD 2003) include wastewater treatment plants, petroleum refineries, and dairy and feed lots, among other industrial and agricultural uses. Construction emissions do not result in odors

nearly as strong as these land uses; therefore, a two mile screening threshold is conservative for this analysis. The nearest existing sensitive receptor to the construction site are the residences located approximately 0.8 mile from the Alternative site, and the Spanish Landing Park, located approximately 0.9 mile west of Convair Lagoon, that may be exposed to temporary nuisance odors from construction. Not all construction equipment would be operating at once, and would be located throughout the construction and staging areas, so that the potential for a particular receptor to be exposed to odors during construction may not occur. Therefore, nuisance odors would be intermittent and would cease upon the completion of construction. Additionally, visitors to the park would only be exposed to odors for the short period of time while they are using the park facilities. The residences are currently exposed to sources of exhaust odors from the major roadways between the residences and the Alternative site, including Pacific Highway and Interstate 5. Therefore, construction would not expose a substantial number of people to new nuisance odors. Land uses immediately surrounding the construction area are the San Diego International Airport, the United States North Harbor Drive Coast Guard Facility, and a rental car parking lot. These land uses would not be sensitive to intermittent diesel odors because they are not considered sensitive receptors. Therefore, similar to the Proposed Project, impacts associated with nuisance odors from diesel exhaust would not be significant under the Convair Lagoon Alternative.

Similar to the proposed project, approximately 15 percent of dredged contaminated sediment would require dewatering as part of the Convair Lagoon Alternative. Additionally, dredged sediment from the Convair Lagoon Site for containment barrier construction would be stockpiled during construction of the barrier. It is anticipated that the dredged sediment from both sites will contain organic materials and that the decomposition of the organic matter may generate unpleasant odors. Therefore, similar to the Proposed Project, the dredged material may result in a significant temporary odor impact in the vicinity of the dredging and dredge drying operations.

The CARB's Air Quality and Land Use Handbook identifies a list of the most common sources of odor complaints received by local air districts. Typical sources of odor complaints include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. The Convair Lagoon Alternative includes the development of a CDF. The contaminated sediment contains organic matter that may emit odors if it would be exposed to the air and allowed to decay. However, upon completion of CDF construction, the sediment would be completely contained within an asphalt-paved, undeveloped parcel of land located approximately 10 feet MLLW. Paved lots do not generate objectionable odors. Therefore, the Convair Lagoon Alternative would not generate objectionable odors and odor impacts would be less than significant.

Mitigation Measures

The following mitigation measures are required to reduce significant impacts to nitrogen oxide emissions and objectionable odors. The measures are organized to correlate to the various significant impacts identified above by threshold.

Threshold 5.10.3.2: Conformance to Federal and State Ambient Air Quality Standards. Mitigation Measure 1 through Mitigation Measure 9 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) would also be required for the Convair Lagoon Alternative. Additionally, mitigation measure 5.10.3.1 would reduce impacts related to emissions of nitrogen oxides during the barge transfer of shipyard sediment to the CDF. The Convair Lagoon Alternative would not exceed the significant thresholds during any other phase of construction, or during operation; therefore, no mitigation measures are required for the other phases of construction or operational emissions.

Mitigation Measure 5.10.3.1: **Prohibit Tug Boat Idling**. The applicant responsible for the tug boat operation shall ensure that tug boats not be allowed to idle during any barge loading and unloading activities, unless the tug boat is actively engaged in operations.

Threshold 5.10.3.4: Objectionable Odors. Implementation of Shipyard Sediment Site Mitigation Measure 10 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) would require the application of a mixture of Simple Green and water to the excavated sediment as part of odor management to accelerate the decomposition process and shorten the duration of odor emissions. Dewatering would take place in the same location as the Proposed Project; therefore, potential odor impacts as a result of the Convair Lagoon Alternative are also expected to be less than significant due to the distance between the proposed dewatering pad areas from the nearest sensitive receptors (see Section 4.6, Air Quality for information about the proposed project). However, similar to the Proposed Project, this impact would remain a temporary significant and unavoidable impact because it is difficult to predict the nature and duration of odor emissions from decomposition.

Cumulative Impacts

Threshold 5.10.3.1: Consistency with Applicable Air Quality Plans. The geographic context for the analysis of cumulative impacts relative to criteria air pollutants is the SDAB. The RAQS and SIP are intended to address cumulative impacts in the SDAB based on future growth predicted by SANDAG in the 2030 Regional Growth Forecast Update. SANDAG uses growth projections from the local jurisdictions' adopted general plans; therefore, development consistent with the applicable general plan would be generally consistent with the growth projections in the air quality plans. Cumulative development would generally not be expected to result in a significant impact in terms of conflicting with RAQS because the cumulative projects would be required to demonstrate that the proposed development is consistent with local planning documents. However, some projects would involve plan

amendments that would exceed the growth assumptions in the planning document and RAQS. For example, the North Embarcadero Port Master Plan Amendment, listed in Table 5-8, Cumulative Projects in the Vicinity of the Convair Lagoon Alternative, is a Port Master Plan Amendment that proposes a variety of land uses changes. Therefore, cumulative development in the SDAB would have the potential to exceed the growth assumptions in the RAQS and result in a conflict with applicable air quality plans. The Convair Lagoon Alternative includes a PMPA amendment that would change the land uses over the 10-acre water portion of the site. However, the analysis of the PMPA, described above under Section 5.10.3.5.1, concluded that it would not exceed the SANDAG growth projections. Therefore, the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to a potentially significant cumulative impact.

Threshold 5.10.3.2: Consistency with Air Quality Standards. The geographic context for the analysis of cumulative impacts relative to criteria air pollutants is the SDAB. As noted within Section 5.10.3.1.4, the SDAB is designated as being in non-attainment for PM_{10}, $PM_{2.5}$, and ozone. Therefore, the baseline cumulative impact to the SDAB due to air pollution from stationary and mobile source emissions associated with basin-wide polluting activities is significant.

The San Diego Water Board does not have thresholds for air quality standards; therefore, thresholds from the City of San Diego were considered. The City of San Diego recommends applying the CAAQS as the significance threshold for cumulative impacts where accepted methodology exists. However, the city has no accepted methodology nor has the District or the San Diego Water Board recommended a methodology for determining a project's impacts related to the CAAQS. However, the County of San Diego has adopted a methodology for addressing cumulative impacts in its Guidelines for Determining Significance – Air Quality, which will be used for this analysis. The County's cumulative impact methodology states that a project's construction emissions would be considered cumulatively considerable if the project would result in significant direct emissions of PM_{10}, $PM_{2.5}$, VOCs, or NO_x, or if the proposed project's emissions would combine with emissions from a nearby simultaneous construction project to exceed the direct impact significance thresholds for these pollutants. The significance thresholds for PM_{10}, $PM_{2.5}$, VOCs, and NO_x are listed in above in Table 5-12.

Based on the Localized Significance Thresholds (LST) established by the SCAQMD (SCAQMD, 2009), NO_x emissions decrease approximately 95 percent beyond approximately 675 meters (2,195 feet). Therefore, cumulative projects 2,195 feet from Convair Lagoon are excluded from the cumulative NO_x analysis. According to the LSTs, $PM_{2.5}$ and PM_{10} decrease approximately 95 percent by 500 meters (1,625 feet). SCAQMD has not established an LST for VOCs. However, VOCs disperse quickly (California Indoor Air Quality, 2011); therefore, it is assumed that VOC emissions would decrease by 95 percent beyond 500 meters, similar to PM_{10} and $PM_{2.5}$. Therefore, cumulative projects 1,625 feet from Convair Lagoon are excluded from the cumulative PM_{10}, $PM_{2.5}$, and VOC analysis. As a result, cumulative projects within 675 meters (2,195 feet) of Convair Lagoon are considered in the analysis of cumulative

construction emissions. During operation, a project would result in a significant cumulative impact if it would conflict with the RAQS or SIP during operation, or exceed the significance thresholds listed in Table 5-12.

The projects that are located within 2,195 feet of the Convair Lagoon Site are the North Side - Airfield Project 5 and West Side - Ground Transportation Project 5 at the San Diego International Airport, the Teledyne Ryan Demolition Project, and the Sunroad Harbor Island Hotel. The cumulative projects would require the use of heavy construction equipment and truck trips throughout the duration of the construction that would result in emissions of NOx, VOCs, PM_{10}, and $PM_{2.5}$. The proposed Alternative's direct impact would exceed the significance threshold for NO_x during the sediment transport and placement phase. Therefore, the proposed Alternative, individually and in combination with the proposed cumulative projects, would result in cumulatively considerable NO_x emissions.

Two cumulative projects are located within 1,625 feet of the Convair Lagoon Site: the Teledyne Ryan Demolition Project and the Sunroad Harbor Island Hotel. As discussed in Section 5.10.3.5.2, Threshold 5.10.3.2, Consistency with Air Quality Standards, none of the phases of Alternative construction would exceed the significance thresholds for PM_{10}, $PM_{2.5}$, or VOCs. However, due to the heavy equipment and truck trips that would be required at the cumulative project sites, if construction of either project would occur simultaneously with the Convair Lagoon Alternative, PM_{10}, $PM_{2.5}$, and VOC emissions in the area between the sites, where emissions from both projects would combine, would have the potential to exceed the significance thresholds for PM_{10}, $PM_{2.5}$, or VOCs and result in a significant cumulative impact.

Shipyard Sediment Site Mitigation Measures 1 through 9 and mitigation measure 5.10.3.1 would reduce criteria pollutant emissions, but not to a level less than cumulatively considerable. Therefore, similar to the Proposed Project, the Convair Lagoon Alternative would result in a cumulatively considerable contribution to a significant cumulative construction impact related to emissions of PM_{10}, $PM_{2.5}$, VOC, and NO_x emissions.

As discussed in Section 5.10.3.5.2, Threshold 5.10.3.2, Consistency with Air Quality Standards, operational emissions associated with the Convair Lagoon Alternative would be negligible and would not violate any air quality standard. Additionally, as discussed in Section 5.10.3.5.1, Threshold 5.10.3.1, Consistency with Applicable Air Quality Plans, the Convair Lagoon Alternative would not conflict with the RAQS or the SIP. Therefore, the Convair Lagoon Alternative would comply with the applicable air quality standards and air quality plans. The potential air emissions associated with operation of the Convair Lagoon Alternative would not adversely impact the ability of the SDAB to meet the CAAQS and NAAQS. Therefore, the Convair Lagoon Alternative would not result in a cumulatively considerable operational contribution to the local cumulative impact area.

Threshold 5.10.3.3: Sensitive Receptors.

Carbon Monoxide Hotspots. The geographic context for the analysis of cumulative impacts relative to exposure of sensitive receptors to carbon monoxide hot spots would be the nearby intersections along Harbor Drive. The Convair Lagoon site and most of the cumulative projects listed in Table 5-8, Cumulative Projects in the Vicinity of the Convair Lagoon Alternative, would be located on or close to Harbor Drive. Therefore, cumulative project traffic would generally be concentrated on Harbor Drive. Implementation of the cumulative projects would have the potential to reduce intersection operations on Harbor Drive to an LOS D or worse. However, as discussed in Section 5.10.3.5.1, Threshold 5.10.3.3, Impact to Sensitive Receptors, the Convair Lagoon Alternative would only result in a temporary increase in traffic on Harbor Drive and would not contribute to long-term carbon monoxide levels. Similar to the Proposed Project, the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to cumulative impact related to carbon monoxide hot spots.

Toxic Air Contaminants. The cumulative projects in the Convair Lagoon vicinity, listed in Table 5-8, Cumulative Projects in the Vicinity of the Convair Lagoon Alternative, include hotels and expansion of the Convention Center, which would require diesel truck trips to deliver supplies such as food for hotel restaurants. Expanded operational capacity at the airport may also result in an increase in truck trips. However, truck trips to hotel and convention center uses would be intermittent and would not substantially increase diesel particulate emissions. The airport improvements do include new gates, but generally consist of demolition of facilities and providing new access routes and parking facilities. These improvements would not substantially increase truck trips above existing conditions. Construction of the CDF and construction activities at the Shipyard Sediment Site would require diesel equipment and truck trips during construction only. Up to approximately a maximum of 100 daily truck trips would be required during construction at the Convair Lagoon and Shipyard Sediment Sites. However, construction emissions would be temporary and would not result in a long term increase in exposure to TAC emissions. Additionally, the HRA prepared for the Proposed Project determined that a temporary increase of 100 daily truck trips would not exceed the SDAPCD criterion for cancer or chronic or acute health risks. Therefore, a cumulative impact to sensitive receptors from diesel particulate emissions would not occur.

Stationary sources of TAC emissions identified in CARB's Air Quality and Land Use Handbook (2005) are freeways, rail yards, ports, refineries, dry cleaners, and large gas dispensing facilities. Projects at the San Diego International Airport include expansion of a utility plant and co-generation facility. Several cumulative projects would also increase operations in the District, including the Commercial Fisheries Revitalization Plan and Port Pavilion on Broadway Pier Project. Therefore, the cumulative projects would have the potential to result in an increase in TAC emissions and a potentially significant cumulative impact would occur. However, the Convair Lagoon Alternative would consist of an undeveloped, above-ground parcel of land. It would not result in a new source of stationary TAC emissions. Therefore, the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

Threshold 5.10.3.4: Objectionable Odors. Similar to the Proposed Project, odors resulting from the treatment of decomposing sediments under the Convair Lagoon Alternative could result in temporary odor impacts. However, impacts relative to objectionable odors are limited to the area immediately surrounding the odor source and are not cumulative in nature because the air emissions that cause odors disperse beyond the their source. As the emissions disperse, the odor becomes less and less detectable. Additionally, as discussed above in Section 3.1.5.2, Threshold 5.10.3.4, Objectionable Odors, following construction the CDF would consist of undeveloped land and would not result in a source of odors. None of the proposed cumulative projects propose development that is a typical source of odor complaints. Therefore, the Convair Lagoon Alternative, in combination with other cumulative projects, would not result in a cumulatively significant impact associated with objectionable odors.

Level of Significance After Mitigation

No quantification for the emissions reduction associated with Mitigation Measures 1 through 9 is provided in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G); however, these measures would minimize nitrogen oxide emissions by requiring the use of high-efficiency equipment, proper maintenance of equipment, shutting off engines when not in use, timing construction activities to not coincide with peak-hour traffic, and encouraging ridesharing and transit use. In addition, Mitigation Measure 5.10.3.1 would limit tug boat operation to four hours per day per tug boat. The maximum daily emissions during sediment transport and Shipyard Sediment Site construction activities with implementation of mitigation measure 5.10.3.1 are shown in Table 5-22. As shown in this table, implementation of mitigation measure 5.10.3.1 would reduce emissions of nitrogen oxides during Phase 4 of Convair Lagoon Alternative construction, but not to a less than significant level. Since it is unknown whether the Shipyard Sediment Site mitigation measures would reduce this impact to a less than significant level, this temporary impact would remain significant and unavoidable.

Table 5-22: Sediment Transfer Daily Maximum Emissions with Implementation of Mitigation Measure 5.10.3.1

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	NO_X	VOC	SO_X	PM_{10}	$PM_{2.5}$
Tug Boat Operations	61	325	13	5	10	10
Material Placement	35	40	7	0	3	2
Kettleman Hills Landfill Disposal Truck Trips	54	155	11	0	7	6
Dredging of Shipyard Sediment Site[(1)]	10	16	1	4	1	1
Landside Operations – Pad Construction	83	164	14	20	9	8
Landside Operations – Operation[(1)]	20	39	3	7	2	2
Covering Sediment Near Structures	31	105	6	4	4	4

Total Unmitigated Emissions	*294*	***844***	*55*	*40*	*36*	*33*
Reduction in Tug Boat Emissions from Implementation of Mitigation Measure 5.10.3.1	(- 31)	(-163)	(-7)	(-2)	(-5)	(-5)
Total Emissions with Mitigation Measure 5.10.3.1	*263*	***681***	*48*	*38*	*31*	*28*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	**Yes**	No	No	No	No

Bold = Exceeds threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007, and LSA, 2011. See Appendix I for data sheets.

Similar to the Proposed Project, Shipyard Sediment Site Project Mitigation Measure 10 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) would reduce the duration of odor impacts, but not to a less than significant level. This impact would be a temporarily significant and unavoidable.

Significant Unavoidable Adverse Impacts

Implementation of Mitigation Measures 1 though 10 described in the Air Quality Analysis for the Shipyard Sediment Project (Appendix G) and Mitigation Measure 5.10.3.1 for this alternative would reduce temporary impacts related to nitrogen oxide emissions and odors during Phase 4 of Convair Lagoon Alternative construction, but not to a less than significant level. These temporary impacts would be significant and unavoidable.

5.10.4 Biological Resources

This section evaluates the potential for biological resource impacts to occur from implementation of the Convair Lagoon Alternative. The term "biological resources" refers to marine plant and animal communities within the Convair Lagoon Alternative site. Potential impacts addressed in this section include direct and indirect impacts to sensitive plant and wildlife species, sensitive natural communities, wetlands, wildlife movement corridors, and conflicts with local policies or ordinances. This section incorporates information and analyses provided in the *Shipyard Sediment Alternative Analysis Convair Lagoon Confined Disposal Facility Alternative Marine Biological Resources Technical Report,* written by Merkel and Associates in May 2011. This report is provided as Appendix J of this EIR.

5.10.4.1 Existing Environmental Setting

Habitat Types

The Convair Lagoon Alternative site is located near the border of the north ecoregion and north-central ecoregion of the San Diego Bay. Four general types of habitats occur in the site:

- Upland (>+7.79 ft Mean Lower Low Water (MLLW))
- Intertidal (+7.79 to -2 ft MLLW)

- Shallow Subtidal (-2 to -12 ft MLLW)
- Moderately Deep and Deep Subtidal (below -12 ft MLLW)

Table 5-23 summarizes the acreage of these habitat types, and subhabitats, within the Convair Lagoon Alternative site. Figure 5-8 identifies the location of these habitats within the Convair Lagoon Alternative site. The various habitats described below include their approximate topographic location, which is generally expressed as above or below MLLW (approximately sea level).

Uplands. Upland habitats on the Convair Lagoon Alternative site are illustrated in Figure 5-8. Upland habitat generally occurs above the areas influenced by tidal action, or above +7.8 ft MLLW. The urban disturbed upland habitat in the Convair Lagoon Alternative site consists of man-modified features, such paved surfaces, concrete debris, and rip-rap revetment and accounts for approximately 0.64 acres. Disturbed uplands consist primarily of nonnative grasslands and disturbed, weedy areas, and account for approximately 0.46 acres. The majority of the native upland habitats that once occurred around San Diego Bay have long since been replaced by development.

Intertidal. Intertidal habitats on the Convair Lagoon Alternative site are illustrated in Figure 5-8. Subhabitats include intertidal beach, coastal salt marsh, intertidal flats and lower intertidal habitat.

Table 5-23: Habitat Types within the Convair Lagoon Alternative Site

Habitat Type	Acres
Upland (>+7.8 ft MLLW)	
Urban Disturbed (Man-Modified)	0.64
Disturbed Upland	0.46
Intertidal (+7.8 to -2 ft MLLW)	
Intertidal Beach (+7.8 to +2.3 ft MLLW)	0.83
Coastal Salt Marsh (+7.8 to +2.3 ft MLLW)	0.11
Intertidal Flats (+2.3 to 0 ft MLLW)	1.65
Lower Intertidal (0 to -2 ft MLLW)	1.42
Man Modified	1.12
Total (Non Man Modified)	4.01
Shallow Subtidal (-2 to -12 ft MLLW)	
Man Modified	0.19
Total (Non Man Modified)	4.49
Total Non-Man-Modified Habitat (Intertidal and Subtidal)	8.50
Moderately Deep and Deep Subtidal (below -12 ft MLLW)	0.31

Source: Merkel and Associates, 2011

Intertidal beach habitat occurs between the depths of +7.8 to +2.3 ft MLLW and generally occurs in the northeastern part of the site and covers approximately 0.83 acres. Coastal salt marsh habitat is composed of salt tolerant vegetation and occurs in the upper intertidal zone. Coastal salt marsh occurs between regular (daily) to irregular (less than daily) tidal inundation and is exposed more than inundated. Tidal circulation is the most important water source for the coastal salt marsh habitat and tides carry necessary nutrients into this habitat. Approximately 0.11 acres of coastal salt marsh habitat are present on site between the depths of +7.8 to +2.3 ft MLLW in the northeast and northcentral part of the site.

Intertidal flats include mudflats and sand flats and consist of various combinations of clay, silt, sand, shell fragments, and organic debris. The water levels on the intertidal flats are determined by the daily tidal cycles, which submerge or expose the surface approximately twice per day. Approximately 1.65 acres of intertidal flats are present on the site between the depths of +2.3 to 0 ft MLLW. Intertidal mudflats contain abundant organic matter and microorganisms, but not at the level found in eelgrass beds or salt marsh habitat. On the Convair Lagoon Alternative site, the lower intertidal zone is generally inundated for the majority of the day, and is only exposed during periods of extreme low tides. The substrate is similar to intertidal flats, and is considered the upper limit for eelgrass beds within San Diego Bay. Approximately 1.42 acres of lower intertidal habitat is present on the site between the depths of 0 to -2 ft MLLW, some of which supports eelgrass.

Shallow Subtidal. The majority of the open waters in the Convair Lagoon Alternative site are classified as shallow subtidal habitat. This habitat is defined as continually submerged shallow water habitat that extends from -2 to -12 ft MLLW. In San Diego Bay, shallow subtidal habitat supports an abundance of fish and bird abundance and diversity is higher in this habitat than in any other subtidal habitats in the bay, possibly due to the higher abundance of fish (INRMP, 2007). On the Convair Lagoon Alternative site, approximately 4.49 acres of shallow subtidal habitat is present.

Moderately Deep Subtidal. Moderately deep subtidal habitat on site occurs between the depths of -12 ft to -20 ft MLLW. Moderately deep subtidal habitat represents areas that generally have been dredged in the past but are not maintained as navigational channels. On the Convair Lagoon Alternative site, approximately 0.31 acres of moderately deep subtidal habitat is present.

Flora and Fauna

Eelgrass. Extensive eelgrass beds are present on the Convair Lagoon Alternative site, as shown in Figure 5-8. Eelgrass (*Zostera marina*) vegetated habitats are an essential component of southern California's coastal marine environment. 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 for avian species and nursery sites for numerous species of fish. On the Convair Lagoon Alternative site, eelgrass beds extend from +1 ft to -12 ft MLLW and cover approximately 5.64 acres. An additional 0.37 acres of eelgrass are located directly adjacent to the southern boundary of the Convair Lagoon Alternative site.

Vegetation. In addition to eelgrass, vegetation on site is represented by pickleweed (*Salicornia* spp.), saltbush (*Atriplex semibaccata*), salt grass (*Distichlis spicata*), as well as numerous weedy species characteristic of disturbed habitat.

Algae. Limited algal growth is present on the Covair Lagoon Alternative site with common algae found attached to artificial structures such as the existing pier and seaplane launch ramp. Algae species present on site include diatoms, blue-green algae, *Corallina pinnatifolia*, *Gelidium coulteri*, *Gelidium robustum*, *Laurencia pacifica*, *Sargassum muticum*, *Polisiphonia* sp., and sea lettuce (*Ulva* sp).

Fish. Rip-rap structures and seawalls within the San Diego Bay are known to attract and support a variety of fish. Rip-rap structures and seawalls within the San Diego Bay have also been reported as good lobster diving and sport fishing sites, as they provide refuge and feeding areas for certain juvenile and predator fishes, such as perches, basses, dogfish, opaleye, and croaker.

The Convair Lagoon Alternative is located between the north ecoregion and north-central ecoregion of the San Diego Bay. The last fish collection sampling for the north ecoregion and north-central ecoregion occurred in 2008. During this sampling, 33 fish species were found to occur in the north ecoregion of the San Diego Bay. Fish species with the greatest presence in numbers within the north ecoregion of the San Diego Bay included slough anchovy (*Anchoa delicatissima*), top smelt (*Atherinops affinis*), salema (*Xenistius californiensis*), arrow goby (*Clevelandia ios*), and giant kelpfish (*Heterostichus rostratus*). During the 2008 sampling for the north-central ecoregion, 27 species fish species were found to occur. Within the north-central ecoregion of the San Diego Bay, fish species with the greatest presence in numbers included slough anchovy, topsmelt, giant kelpfish, and bay pipefish (*Syngnathus leptorhynchus*).

In a 2011 field survey of the Convair Lagoon Alternative site by Merkel and Associates (Appendix J of this EIR), the round stingray (*Urobattus halleri*) was the only fish observed on site. However, other fish species such as barred and spotted sand bass (*Paralabrax nebulifer* and *P. maculatofasciatus*), and midshipman (*Porichthys myriaster*) are likely to use the Convair Lagoon Alternative site for habitat.

Birds. Between March 2006 and February 2007, avian surveys were conducted within San Diego Bay. One sampling point for this survey was located in the southeastern portion of the Convair Lagoon Alternative site, along the rip-rap/seawall. Forty-four bird species were observed at the Convair Lagoon Alternative site during this avian survey. Table 5-24 identifies these bird species. Only one of these species, the California least tern (*Sternula antillarum browni*), is listed as both state endangered and federal endangered.

Mammals. Marine mammal species known to regularly occur within the north San Diego Bay include the California sea lion (*Zalophus californianus*) and the coastal bottlenose dolphin (*Tursiops truncatus*). Species that are known to occasionally frequent the north channels of San Diego Bay include the Pacific harbor seal (*Phoca vitulina*) and the gray whale (*Eschrichtius robustus*). Convair Lagoon Alternative site is not considered a major seal or sea lion haul out area.

Other. Burrowing invertebrates, tube dwelling anemones, arthropods (e.g., ghost shrimp, *Callianassa*), and bivalves occur within the Convair Lagoon Alternative site, in areas of unvegetated, soft-bottom habitat. These species were found primarily on artifical structures, including rip-rap, concrete seawalls, the peir and the seaplane launch ramp. Invertebrates found within the Convair Lagoon Alternative site includecolonial tunicates (i.e., *Botryllus* sp.), oysters (*Ostrea lurida*), sponges (*Leucilla nuttingi*), mussels (*Mytilus* sp.), feather duster worms (Sabillidae), colonial ascidians (*Botrylloides* sp.), solitary tunicates (e.g., *Ciona* sp., *Styela plicata*), bryozoans (i.e., *Eurystomella* sp.), snails, crabs, polychaete worms, and the non-native bryozoan *Zoobotryon verticillatum*. Within the intertidal zone, barnacles (*Chthamalus* spp., *Balanus* sp.) were the most common invertebrates on the bulkhead walls or rip-rap.

Table 5-24: Birds Observed at the Convair Lagoon Alternative Site during Falling and Peaking Tide from March 2006 to February 2007

Common Name	Scientific Name	Total
1. Western gull	*Larus occidentalis wymani*	172
2. Marbled godwit	*Limosa fedoa fedoa*	142
3. Least sandpiper	*Calidris minutilla*	114
4. Bufflehead	*Bucephala albeola*	45
5. Willet	*Tringa semipalmata inornatus*	44
6. Western grebe	*Aechmophorus occidentalis occidentalis*	37
7. Double-crested cormorant	*Phalacrocorax auritus*	30
8. Black-bellied plover	*Pluvialis squatarola*	21
9. Eared grebe	*Podiceps nigricollis californicus*	19
10. Surfbird	*Aphriza virgata*	17
11. Lesser scaup	*Aythya affinis*	16
12. Semipalmated plover	*Charadrius semipalmatus*	15
13. Mallard	*Anas platyrhynchos platyrhynchos*	12

Table 5-24: Birds Observed at the Convair Lagoon Alternative Site during Falling and Peaking Tide from March 2006 to February 2007

Common Name	Scientific Name	Total
14. Scaup sp.		11
15. Spotted sandpiper	*Actitis macularius*	10
16. Great blue heron	*Ardea herodias wardi*	9
17. Surf scoter	*Melanitta perspicillata*	9
18. Snowy egret	*Egretta thula thula*	6
19. Killdeer	*Charadrius vociferus vociferus*	5
20. Ruddy turnstone	*Arenaria interpres*	5
21. Belted kingfisher	*Ceryls alcyon*	5
22. Brown pelican	*Pelecanus occidentalis californicus*	4
23. Ring-billed gull	*Larus delawarensis*	4
24. Pied-billed grebe	*Podilymbus podiceps podiceps*	4
25. American crow	*Corvus brachyrhynchos hesperis*	3
26. Forster's tern	*Sterna forsteri*	3
27. Caspian tern	*Hydroprogne caspia*	3
28. Heermann's gull	*Larus heermanni*	3
29. Long-billed curlew	*Numenius americanus*	2
30. Mourning dove	*Zenaida macroura marginella*	2
31. California least tern	*Sternula antillarum browni*	2
32. Anna's hummingbird	*Calypte anna*	2
33. House finch	*Carpodacus mexicanus frontalis*	2
34. Sanderling	*Calidris alba*	2
35. European starling	*Sturnus vulgaris vulgaris*	2
36. Black phoebe	*Sayornis nigricans semiatra*	1
37. Common raven	*Corvus corax clarionensis*	1
38. Horned grebe	*Podiceps auritus cornutus*	1
39. European starling	*Sturnus vulgaris vulgaris*	1
40. Western sandpiper	*Calidris mauri*	1
41. Greater yellowlegs	*Tringa melanoleuca*	1
42. Northern mockingbird	*Mimus polyglottos polyglottos*	1
43. Ruddy duck	*Oxyura jamaicensis rubida*	1
44. Herring gull	*Larus argentatus smithsonianus*	1

Source: Merkel and Associates 2011

Exotic marine species are also present in San Diego Bay and potentially within the Convair Lagoon Alternative site. Exotic marine species have arrived in these areas through direct and indirect means, for intentional and unintentional purposes. Invasion risks stem from ballast water exchanges and hull fouling, as well as from aquarium, pet, nursery, aquaculture, and seafood industry trade. During the 1998 Regional Bight Survey of the San Diego Bay, the nonindigenous bivalve *Musculista senhousia* was present in more than 70 percent of the samples, making it the most widely distributed trawl caught invertebrate in the bay. *Musculista senhousia* together with another nonindigenous species *Microcosmus squamiger*, accounted for over 50 percent of the total catch. The green alga, *Caulerpa taxifolia*, has also

been eradicated from several regional water bodies and may occur within the bay and the Convair Lagoon Alternative site.

Sensitive Species

Certain plants and animals have been listed as threatened or endangered under the state or federal Endangered Species Act. Other species have not been formally listed, but declining populations or habitat availability are reasons for concern in regard to their long-term viability. These species are included in lists compiled by resource management agencies or private conservation organizations. For the purposes of this EIR, "special status" species include those species that have been recognized by either federal or state resource management agencies or conservation organizations as having special management needs due to limited distribution, limited numbers, or significant population declines associated with natural or manmade causes. Special status species include those designated as endangered, threatened, rare, protected, sensitive, or species of special concern according to the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), or applicable regional plans, policies, or regulations. Special status plant and wildlife species that have the potential to occur on the Convair Lagoon Alternative site are discussed below.

California least terns. The California least tern (*Sternula antillarum browni*) is a state endangered and federal endangered species. California least terns were observed on the Convair Lagoon Alternative site during the 2006/2007 San Diego Bay avian survey. The closest nesting site for California least terns is located at the San Diego International Airport (SDIA), approximately 0.25 miles north of Convair Lagoon Alternative site. These nesting areas include three sites that are protected with a seven-inch tall plastic fence to keep least tern chicks from wandering onto the taxiways. The nesting site is managed by the San Diego County Regional Airport Authority.

Colony size and reproductive success of the least tern located at the SDIA nesting site have varied widely from year to year depending on prey availability, predation and predator presence, and human disturbance. In 2010, at least 161 chicks from 88 nests hatched successfully at the SDIA nesting site. That same year, approximately 29 to 38 young fledged from the SDIA nesting site. Predators observed in the SDIA nesting area include ants, peregrine, kestrel, and raven. Possible predators include opossum, rats, raccoon, cat, great blue heron, night-heron, Cooper's hawk, gulls, barn owl, crow, and starlings.

The western snowy plover (*Charadrius alexandrinus nivosus*), a federally threatened subspecies, has not been observed at the Convair Lagoon Alternative site but was observed on the mudflats west of the nesting site at D Street Fill area in south San Diego Bay. The small sandy beach habitat on the Convair Lagoon Alternative site precludes extensive use of the site by the plover species, and none have been observed during past surveys.

The only turtle found in San Diego Bay is the east Pacific green sea turtle (*Chelonia mydas*), which is listed as endangered under the federal Endangered Species Act. The east Pacific green sea turtle does not breed or nest in San Diego Bay, and is associated with a breeding population on Islas Revillagigedos, Mexico. However, adults and juveniles have been sighted in the Bay, with individuals seen year round in the channel at the South Bay Power Plant, in the South Bay, and around Naval Air Base Coronado.

5.10.4.2 Regulatory Setting

Federal

Federal Endangered Species Act. The federal Endangered Species Act (ESA), administered by the USFWS, provides the legal framework for the listing and protection of species (and their habitats), which are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the ESA. Section 9(a) of the ESA defines take as, "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Sections 10(a) and 7 of the federal ESA allow actions that could adversely affect endangered or threatened species to move forward, provided certain requirements are met.

Clean Water Act. Under section 404 of the Clean Water Act, the Army Corps of Engineers (ACOE) regulates the disposal of dredged and fill materials into "waters of the United States." Waters of the U.S. include intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the U.S. (CFR 33 Part 328). The ACOE also regulates navigable waters under section 10 of the Rivers and Harbors Act. A permit from the ACOE must be obtained for any dredge or fill activities within jurisdictional waters of the U.S. During the permit review process the ACOE determines the type of permit appropriate for the project based on the extent of impacts and type of fill activities.

In addition to the section 404 permit, section 401 of the Clean Water Act requires that a 404 permit applicant 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 grant certification or waive the requirement for permits under section 401 is delegated by the State Water Resource Control Board (State Water Board) to the Regional Water Quality Control Board (San Diego Water Board).

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-711) implements an international treaty for the conservation and management of bird species that may migrate through more than one country. It is enforced in the United States by the USFWS, and makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21).

Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered a "take" and is potentially punishable by fines and/or imprisonment. In 1972, the MBTA was amended to include protection for migratory birds of prey (raptors). Generally, applicants who obtain an ESA section 10(a) permit simultaneously receive a three-year MBTA permit for ESA listed migratory birds.

Magnuson-Stevens Fishery Conservation and Management Act. Under the provisions of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, the amendments require the delineation of Essential Fish Habitat (EFH) for all managed species. EFH has been designated over all tidal marine waters in southern California. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with the National Marine Fisheries Service (NMFS) regarding the potential effects of their actions on EFH, and respond in writing to the NMFS's recommendations.

State

California Coastal Act. The California Coastal Act (CCA) provides for the protection of environmentally sensitive habitat identified by the CDFG from adjacent developments in the coastal zone. The Convair Lagoon Alternative site lies within the coastal zone. The CCA identifies environmentally sensitive habitat areas as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. The site is not considered an environmentally sensitive habitat area under the California Coastal act because habitats on site are too fragmented to support any listed species or species considered to be rare (M&A 2011). Section 30240 of the CCA provides protection for environmentally sensitive habitat areas, as stated:

"Environmentally sensitive habitat areas; adjacent developments:

- 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.
- Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas."

Compliance with these and other requirements in the CCA is ensured for specific development projects in the coastal zone through issuance of coastal development permits.

California Fish and Game (CFG) Code. The CFG Code regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the state. It includes the CESA (sections 2050-2115) and Streambed Alteration Agreement regulations (sections 1600-1616), which are both discussed in more detail below, as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife. The CFG Code also includes protection of birds (sections 3500 *et seq*.) and the California Native Plant Protection Act (NPPA) of 1977 (sections 1900-1913), which directed CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this state."

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 (sections 2050-2098, Fish and Game Code). CESA defines "endangered" species as those whose continued existence in California is jeopardized. State listed "threatened" species are those not presently threatened with extinction, but which may become endangered in the foreseeable future. Protection of special-status species is detailed in sections 2050 *et seq*. of the Fish and Game Code. The California Code of Regulations (Title 14, section 670.5) lists animal species considered endangered and threatened by the state. Title 14, section 670.2 of the California Code of Regulations lists plant species considered endangered and threatened by the state. Formal consultation must be initiated with the CDFG for projects that may have an adverse effect on a state-listed species.

Section 2080 of the California Fish and Game Code prohibits the taking of state listed plant and animals. The CDFG also designates "fully protected" or "protected" species as those that may not be taken or possessed without a permit from the Fish and Game Commission and/or the CDFG. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

Lake and Streambed Alteration Program. Section 1602 of the CFG Code requires any person, state, or local governmental agency to provide advance written notification to CDFG prior to initiating any activity that would: 1) divert or obstruct the natural flow of, or substantially change or remove material from the bed, channel, or bank of any river, stream, or lake; or 2) result in the disposal or deposition of debris, waste, or other material into any river, stream, or lake. The state definition of "lakes, rivers, and streams" includes all rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life, and watercourses with surface or subsurface flows that support or have supported riparian vegetation.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act provides for statewide coordination of water quality regulations. The Act established the State Water Board as the statewide authority and nine separate Regional Water Quality

Control Boards to oversee smaller regional areas within the state. The Act authorizes the State Water Board to adopt, review, and revise policies for all waters of the state (including both surface and ground waters); and directs the Regional Water Quality Control Boards to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the State Water Board to adopt water quality control plans on its own initiative. The Basin Plan for the San Diego Region is designed to preserve and enhance the quality of water resources in the San Diego region for the benefit of present and future generations. The purpose of the plan is to designate beneficial uses of the Region's surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives.

Regional

Southern California Eelgrass Mitigation Policy. The Southern California Eelgrass Mitigation Policy, adopted in 1991, offers specific guidelines for appropriate responses and mitigation measures for activities that threaten eelgrass vegetated habitats. This policy was developed by the federal and state resource agencies: NMFS, U.S. Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG). The Southern California Eelgrass Mitigation Policy requires pre- and post-construction surveys within 30 days of project commencement and completion. These surveys are then used to determine potential mitigation. The Southern California Eelgrass Mitigation Policy requires that impacts to eelgrass be mitigated by restoration at a 1.2:1 area ratio.

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 the San Diego Bay: the US Navy and the San Diego Unified Port District (District). Its intent is to provide direction for the good stewardship of natural resources, while also supporting the ability of the Navy and the District to meet their missions and continue functioning within the Bay. The ecosystem approach reflected in the Plan considers the interconnections among all of the natural resources and human uses of the Bay, across ownership and jurisdictional boundaries. San Diego Bay is viewed as an ecosystem rather than as a collection of individual species or sites or projects. 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.

5.10.4.3 Methodology

Biological resource information within the Convair Lagoon Alternative site is based on a recent habitat survey conducted by Merkel and Associated on March 29, 2011. The habitat survey also included a literature review for specific resources such as fish, avian species. Supplemental information was derived from the San Diego Bay Integrated Natural Resources Management Plan.

The ichthyofauna in San Diego Bay was previously studied by Merkel and Associates (2000) and other various researchers. The Shipyard Sediment Alternative Analysis Convair Lagoon Confined Disposal Facility Alternative Marine Biological Resources Technical Report (Appendix J) for the Convair Lagoon Alternative site made extensive use of a 1999 data set for the San Diego Bay regarding fish because the data set was both recent and comprehensive. Surveys used in the analysis were completed quarterly for five and a half years, at four stations throughout San Diego Bay, using six sampling gear types with a total of 78 species identified. Other research studies used in this analysis were used primarily to confirm the presence of fish species and to identify any additional species.

5.10.4.4 Thresholds of Significance

Threshold 5.10.4.1 : Candidate, Sensitive or Special Status Species. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would substantially and adversely affect, either directly or through habitat modifications, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS (including any flora or fauna of rare and/or endangered status, depleted or declining species, species and habitat types of unique or limited distribution, and/or visually prominent vegetation).

Threshold 5.10.4.2 : Riparian Habitat and Other Sensitive Communities. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS.

Threshold 5.10.4.3: Jurisdictional Waters. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.

Threshold 5.10.4.4: Wildlife Movement Corridors. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would

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.

Threshold 5.10.4.5: Local Policies and Ordinances. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would conflict with any local plans, policies or ordinances protecting biological resources or habitat conservation.

5.10.4.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.4.4: Wildlife Movement Corridors. According to the USFWS, the entire California Coast, including San Diego Bay, is part of the Pacific Flyway (USFWS, 2010). The Pacific Flyway is one of four geographical patterns in the United States that represent the major migratory patterns of waterfowl through the continent. Flyway is a useful geographic term that describes four regions of the United States: Atlantic, Mississippi, Central and Pacific. Although migratory birds fly through many narrow migration corridors, the flyways fairly accurately represent the major north-south migration pathways. Implementation of the Convair Lagoon Alternative, which is located along the Pacific Flyway, would transform the entire existing marine habitat on site to upland habitat. The conversion of this habitat would alter the local circulation patterns of birds in the immediate vicinity of the site by reducing the amount of surface bay water available for foraging activities. However, this change in local circulation patterns from habitat alteration would not represent a significant impact because construction activities associated with the Convair Lagoon Alternative would not degrade water quality in the region to the extent that migrating wildlife would be negatively affected. Furthermore, the bay area surrounding the Convair Lagoon Alternative site contains a large presence of armored shoreline which is used by migrating birds. Implementation of the Convair Lagoon Alternative would not change any adjacent shorelines and migratory birds would continue to frequent these area. No significant impacts to wildlife movement corridors would occur from implementation of the Convair Lagoon Alternative. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to wildlife movement corridors from dredging and dewatering activities at the Shipyard Sediment Site.

Potentially Significant Impacts

Threshold 5.10.4.1: Candidate, Sensitive or Special Status Species. Direct impacts to candidate, sensitive or special status species include those associated with direct destruction or displacement of sensitive plants or natural habitats during construction activities such as excavation, placement of rock, placement of dredged sediment, installation of a sand cap and asphalt paving. Indirect impacts are those that are not a result of direct land disturbance activities. Indirect impacts include impacts such as decreased water quality, increased

fugitive dust and noise, and increased human activity. Indirect impacts would occur during all stages of construction.

Construction of the Convair Lagoon Alternative would transform the entire existing on-site marine habitat to upland habitat. This conversion of marine habitat to upland habitat would result in the direct loss of small, less mobile marine species that use the Convair Lagoon Alternative site, such as invertebrates, algae and eelgrass. Larger and more mobile species may be able to avoid direct losses, but would be forced to relocate to surrounding habitats. Species required to relocate may be affected by an increased demand on resources in adjacent areas, as well as other development in the area. Impacts related to less mobile marine species, such as invertebrates and algae, are considered less than significant because these species are not identified as candidate, sensitive or special status by the CDFG or USFWS. Impacts to larger marine mammals and sea turtles are not considered significant because most are transitory in the vicinity of the Convair Lagoon Alternative site, and tracking data on sea turtles indicate that movement is limited to areas south of the Coronado Bridge. Impacts to eelgrass habitat are discussed below under Issue 2, Riparian Habitat and Other Sensitive Communities.

Of all the species with the potential to occur on the Convair Lagoon Alternative site, the California least tern is the only species that is considered a special status species. The California least tern is listed as both a state and federal endangered species. California least terns were observed foraging on the Convair Lagoon Alternative site between March 2006 and February 2007 during a San Diego Bay avian survey. The closest nesting site to the lagoon was found located at the San Diego International Airport (SDIA), approximately 0.25 miles north of the Convair Lagoon Alternative site.

The conversion of marine habitat to upland habitat from implementation of the Convair Lagoon Alternative would not directly impact the California least tern because this species dwells on land, rather than a marine environment. However, the California least tern would have the potential to be indirectly impacted by construction activities associated with the placement of dredged materials and the construction of the sand cap. These construction activities would result in short-term increases in water turbidity within the vicinity of the Convair Lagoon Alternative site. Increased turbidity in this area would result in a reduction in foraging opportunities for the SDIA California least terns. This would be a significant impact. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to candidate, sensitive or special status species from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.4.2: Riparian Habitat and Other Sensitive Communities. Construction of the Convair Lagoon Alternative would transform the entire existing marine habitat on site to upland habitat. This conversion of habitat would result in a direct loss of eelgrass and would reduce the amount of available San Diego Bay surface water that is used by waterbirds for foraging. Direct impacts to eelgrass and San Diego Bay surface water are discussed separately below. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts

related to riparian habitat or other sensitive communities from dredging and dewatering activities at the Shipyard Sediment Site.

There is no riparian habitat on the site, as identified by the CDFG or USFWS. Therefore, impacts to riparian habitat from implementation of the Convair Lagoon Alternative would be less than significant.

Construction of the Convair Lagoon Alternative has the potential to impact other sensitive natural communities in the site vicinity from bottom disturbance activities that could result in the spread of invasive species. The ecological ramifications of exotic species to sensitive communities off site could range from minor to very significant, depending on local conditions and natural competition. One species that would have significant local impacts to sensitive communities in the site vicinity includes the green alga *Caulerpa taxifolia*, which has been eradicated from several regional water bodies. Without implementation of a survey for invasive seaweeds in the genus *Caulerpa* prior to construction, construction of the Convair Lagoon Alternative could result in the spread of invasive species, which would result in a significant impact to sensitive natural communities.

Eelgrass Loss. Eelgrass vegetated areas are recognized as important ecological communities in shallow bays and estuaries because of their multiple biological and physical values. Eelgrass habitat functions as an important structural environment for resident bay and estuarine species, offering both predation refuge and a food source. Eelgrass functions as a nursery area for many commercially and recreational important finfish and shellfish species, including those that are resident within bays and estuaries, as well as oceanic species that enter estuaries to breed or spawn. Eelgrass also provides a unique habitat that supports a high diversity of non-commercially important species whose ecological roles are less well understood.

Eelgrass is also a major food source in nearshore marine systems, contributing to the system at multiple trophic levels. Eelgrass provides the greatest amount of primary production of any nearshore marine ecosystem, forming the base of food webs and providing a food source for organisms that feed directly on eelgrass leaves, such as migrating waterfowl. Eelgrass is also a source of secondary production, supporting epiphytic plants, animals, and microbial organisms that are grazed upon by other invertebrates, larval and juvenile fish, and birds.

In addition to habitat and resource attributes, eelgrass serves beneficial physical roles in bays and estuaries. Eelgrass beds dampen wave and current action, trap suspended particulates, and reduce erosion by stabilizing the sediment. They also improve water clarity, cycle nutrients, and generate oxygen during daylight hours (NOAA, 2005).

Implementation of the Convair Lagoon Alternative would transform the entire existing marine habitat on site to upland habitat. As shown in Figure 5-9, this conversion of habitat would result in a direct loss of approximately 5.64 acres of eelgrass. An additional 0.37 acres of eelgrass is located adjacent to the Convair Lagoon Alternative site and could be

indirectly impacted from sediment turbidity during construction of the containment barrier, placement of fill and installation of the sand cap. In total, approximately 6.01 acres of eelgrass would be significantly impacted by implementation of the Convair Lagoon Alternative. Direct and indirect impacts to eelgrass from implementation of the Convair Lagoon Alternative would be a significant impact.

The loss of eelgrass is protected under the Southern California Eelgrass Mitigation Policy. Compliance with the Southern California Eelgrass Mitigation Policy is discussed below under Issue 5, Local Policies and Ordinances.

Bay Surface Loss. The majority of the existing Convair Lagoon Alternative site is San Diego Bay surface water. Within the bay area of the site, four marine habitats occur: 1) Disturbed Upland; 2) Intertidal; 3) Shallow Subtidal and 4) Moderately Deep and Deep Subtidal. Implementation of the Convair Lagoon Alternative would convert all existing marine habitats on site to upland habitat and would reduce the amount of surface water present within the San Diego Bay as a whole. Impacts to the marine habitats within the Convair Lagoon Alternative site are described individually below.

Upland. As shown in Table 5-23, approximately 1.1 acres of upland habitat currently exists on the Convair Lagoon Alternative site. The disturbed upland area consists primarily of bare soil, man-modified or the rip-rap shoreline above the highest high tide line, and paved surfaces. Sparse weedy vegetation occurs along this upland fringe between the existing property line and shore. Implementation of the Convair Lagoon Alternative would convert all 1.10 acres of the existing disturbed upland habitat to an above ground, undeveloped, paved parcel of upland habitat with no structures. Disturbed upland habitat is not considered sensitive or biologically important and this modification of habitat would not substantively alter the existing biology of the site. Additionally, the construction of the containment barrier would result in the creation of some upland habitat, as shown in Figure 5-9. Therefore, impacts to disturbed upland habitat would be less than significant.

Intertidal. As shown in Table 5-23, approximately 4.01 acres of non-man modified intertidal habitat, including 0.11 acres of salt marsh habitat, occurs on the Convair Lagoon Alternative site. Implementation of the Convair Lagoon Alternative would result in the direct loss of all 4.01 acres of intertidal habitat, including coastal salt marsh, from the placement of dredge sediment, installation of a sand cap, and asphalt paving. Although some intertidal habitat would be created from the construction of the containment barrier, as shown in Figure 5-9, the direct loss of intertidal habitat would be considered significant due to the presence of eelgrass within this habitat, which is considered an important ecological community and is protected under the Southern California Eelgrass Mitigation Policy. Additionally, intertidal habitats are preferentially used by shorebirds, wading birds, and some diving birds and waterfowl. Finally San Diego Bay is facing a declining trend in marsh and intertidal habitat. Therefore, the direct loss of intertidal habitat from implementation of the Convair Lagoon Alternative site would be a significant impact.

Shallow Subtidal. As shown in Table 5-23, approximately 4.49 acres of shallow subtidal habitat is present on the Convair Lagoon Alternative site. The shallow subtidal habitat includes the existing rip-rap and seawalls on site. The presence of these hard, heterogeneous substrates creates habitat for a diverse assemblage of marine fauna and flora. Implementation of the Convair Lagoon Alternative would result in the direct loss of all 4.49 acres of this shallow subtidal habitat, including 0.19 acres of man-modified shallow subtidal habitat through the placement of dredge sediments, installation of a sand cap, and asphalt paving. Although some intertidal habitat would be created from the construction of the containment barrier, as shown in Figure 5-9, the direct loss of shallow subtidal habitat would be considered significant due to the presence of eelgrass within this habitat, which is considered an important ecological community and is protected under the Southern California Eelgrass Mitigation Policy. The direct loss of man modified shallow subtidal habitat would also be considered a significant impact due to the high value of this habitat type. In addition, the San Diego Bay is facing a declining trend in shallow subtidal habitat. Therefore, the direct loss of shallow subtidal habitat from implementation of the Convair Lagoon Alternative site would be a significant impact.

Moderately Deep and Deep Subtidal. As shown in Table 5-23, approximately 0.31 acres of moderately deep and deep subtidal habitat are present on the Convair Lagoon Alternative site. Implementation of the Convair Lagoon Alternative would result in the direct loss of 0.31 acres of this habitat from the placement of dredge, installation of a sand cap, and asphalt paving. This direct loss of habitat would not be considered significant due to the relative abundance of moderately deep subtidal habitat within San Diego Bay and that this direct loss represents a very small amount (approximately 0.01 percent) of moderately deep and deep subtidal habitat within the Bay.

Threshold 5.10.4.3: Jurisdictional Waters. Waterways, water bodies and wetlands are protected by the Clean Water Act. Specifically, small streams that feed into larger streams, rivers, bays and coastal waters are protected under the Clean Water Act. Additionally, wetlands that filter pollution and help protect communities from flooding are also protected under the Clean Water Act. Discharging pollution or filling protected waters (jurisdictional waters) or wetlands requires a permit from the ACOE. According to the *Marine Biological Resources Technical Report for the Convair Lagoon Site,* written by Merkel and Associates and included as Appendix J of this EIR, 9.85 acres of jurisdictional waters are present on the Convair Lagoon Alternative site and protected under the Clean Water Act. Implementation of the Convair Lagoon Alternative would result in direct impacts to all 9.85 acres of jurisdictional waters from construction activities that would result in the conversion of marine habitat to upland habitat. Direct impacts to jurisdictional waters would be a significant impact. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to jurisdictional waters from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.4.5: Local Policies and Ordinances. Local biological resource policies and ordinances relevant to the Convair Lagoon Alternative include the Port Master Plan, the Southern California Eelgrass Mitigation Policy and the Magnuson-Stevens Fishery Conservation and Management Act. Consistency with these policies is discussed below. The Convair Lagoon Alternative site is not subject to the local ordinances in the city of San Diego because the project site is within the jurisdiction of the District, and outside the jurisdiction of the City of San Diego. Refer to Section 4.5, Marine Biological Resources, of this EIR for impacts related to conflicts with local policies and ordinances from dredging and dewatering activities at the Shipyard Sediment Site.

Port Master Plan. The District has established goals to protect, preserve, and enhance natural resources in San Diego Bay in section II of the Port Master Plan (PMP), Planning Goals. Applicable PMP Planning Goals within section II include Goal V, Goal VII, Goal VIII, Goal X and Goal XI. Consistency with these plans are described below.

Southern California Eelgrass Mitigation Policy. The Southern California Eelgrass Mitigation Policy offers specific guidelines and mitigation measures for activities that threaten eelgrass vegetated habitats. Approximately 5.64 acres of eelgrass would be directly lost from construction of the Convair Lagoon Alternative. An additional 0.37 acres of eelgrass is located adjacent to the project site and has the potential to be indirectly impacted from sediment turbidity during construction activities. In total, approximately 6.01 acres of eelgrass would be impacted by implementation of the Convair Lagoon Alternative. This direct loss represents a conflict with the Southern California Eelgrass Mitigation Policy. This conflict would be a significant impact and is also identified above under Issue 2 for the loss of eelgrass.

Port Master Plan, Section II Applicable Goals	Convair Lagoon Alternative Consistency Evaluation
Goal V. The 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. 1. Bay fills, dredging and the granting of long-term leases will be taken only when substantial public benefit is derived.	The Convair Lagoon Alternative would permanently convert 10 acres of water to upland habitat. The 10 acres of land would remain under District control and would be designated as Harbor Services (land) use under the PMP. Although the site would be permanently converted from water to land, the site would continue to be under the control of the District and designated as Harbor Services in the PMP, which identifies areas devoted to maritime services and harbor regulatory activities of the District. The alternative would require filling a portion of the bay. However, this action is consistent with this goal because implementation of the Convair Lagoon Alternative would protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state through execution of a contaminated sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001. This CAO was issued to minimize adverse effects to several beneficial uses identified for San Diego Bay. These include: Chapter 3 Aquatic life beneficial uses, including Estuaring Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR). Chapter 4 Aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE). Chapter 5 Human health beneficial uses, including Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Shellfish Harvesting, and Commercial and Sport Fishing (COMM). The Convair Lagoon Alternative would therefore provide substantial public benefit by facilitating a contaminated sediment cleanup project and would not conflict with Section II PMP Goal V.
Goal VII. The District will remain sensitive to the needs, and cooperate with adjacent communities and other appropriate governmental agencies in bay and tideland development.	As discussed in Section, 5.10.10, Land/Water Compatibility, the conversion of the Convair Lagoon Alternative site from water to land is consistent with the surrounding community use because the surrounding lands are industrial in nature and an undeveloped, paved lot would therefore result in a compatible land use. Additionally, the District has coordinated with the San Diego Water Board, and other appropriate governmental agencies with regard to the design and planning of the Convair Lagoon Alternative. For each issue analyzed in Chapter 5.10, potential substantial adverse environmental impacts are identified and mitigation measures are provided to minimize these impacts to the extent feasible. No disproportionate impacts to adjacent jurisdictions would occur from implementation of the alternative. Therefore, the Convair Lagoon Alternative would not conflict with Section II PMP Goal VII.
Goal VIII. The District will enhance and maintain the Bay and Tidelands as an attractive physical and biological entity. 1. 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. 2. Views should be enhanced through view corridors, the preservation of panoramoas, accentuation of vistas, and	Approximately three-quarters of the water area associated with the Convair Lagoon Alternative site currently functions as a remediation site for contaminated sediment and is not considered an attractive physical or biological entity because the habitats on site are too fragmented to support any listed species or species considered to be rare and the site is not considered an environmentally sensitive habitat area under the California Coastal Act (M&A, 2011). Implementation of the alternative would continue the existing function of the site for remediation use. In addition, as described in Section 5.10.10, Land Use, this alternative land use would be compatible with existing Port Master Plan adjacent designated land uses. As described in Section 5.10.11, Other Environmental Issues, implementation of the Convair Lagoon Alternative would not impact any existing view corridors, conflict with the visual

Port Master Plan, Section II Applicable Goals	Convair Lagoon Alternative Consistency Evaluation
shielding of the incongruous and inconsistent. 3. 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.	character of the community or result in excessive operational noise. As described in Section 5.10.3, Air Quality, implementation of the Convair Lagoon Alternative would not result in significant noxious odor impacts. Additionally, implementation of the Convair Lagoon Alternative would reduce hazards to the health and welfare of the people of California by protecting the quality of the waters of San Diego Bay for use and enjoyment by the people of the state through execution of a contaminated sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001. Therefore, the Convair Lagoon Alternative would not conflict with PMP Goal VIII.
Goal X. The quality of water in San Diego Bay will be maintained at such a level as will permit human water contact activities.	Implementation of the Convair Lagoon Alternative would protect the quality of the waters of San Diego Bay for use and enjoyment by the people of the state by implementing a contaminated sediment cleanup project consistent with the provisions of Tentative CAO No. R9-2011-0001 and the improvement of several beneficial uses listed above regarding consistency with Goal V of the PMP. Additionally, implementation of the Convair Lagoon Alternative would not result in unmitigated water quality impacts that would prevent human water contact activities. Refer to Section 5.10.9, Hydrology and Water Quality, for a full analysis of water quality impacts related to implementation of the Convair Lagoon Alternative. Therefore, the Convair Lagoon Alternative would not conflict with PMP Goal X.
Goal XI. The District will protect, preserve and enhance natural resources, including natural plant and animal life in the Bay as a desirable amenity, and ecological necessity, and a valuable and usable resource.	Approximately three-quarters of the water area associated with the Convair Lagoon Alternative site is currently used for remediation and monitoring activities and is not considered a desirable ecological amenity or resource because the habitats on site are too fragmented to support any listed species or species considered to be rare and the site is not considered an environmentally sensitive habitat area under the California Coastal Act (M&A, 2011). Although eelgrass is present on the site, implementation of mitigation measures 5.10.4.1 through 5.10.4.4 would off-set the loss of this habitat by creating similar habitat in an alternative location. Implementation of the Convair Lagoon Alternative would continue the site use for remediation and any impacts to natural resources from implementation of the Convair Lagoon Alternative, including plants and animals, would be mitigated to a level below significant with implementation of mitigation measures 5.10.4.1 through 5.10.4.4. Implementation of specified mitigation measures would minimize harmful effects to coastal resources and waters. Additionally, the Convair Lagoon Alternative is not located in PMP Planning Districts 7, 8, or 9, which contain areas identified for conservation purposes by the District. Finally, this alternative would implement Tentative CAO No. R9-2011-0001. This CAO was issued to minimize adverse effects to several beneficial uses identified for San Diego Bay. These include: iii. Aquatic life beneficial uses, including Estuaring Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR). iv. Aquatic-dependent wildlife beneficial uses, including Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE). Therefore, the Convair Lagoon Alternative would not conflict with Goal XI of the PMP.

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act require the delineation and preservation of Essential Fish Habitat for all managed species. Within the Convair Lagoon Alternative site, on-site rip-rap is considered Essential Fish Habitat. Implementation of the Convair Lagoon Alternative would result in the direct loss of approximately 0.19 acres of this Essential Fish Habitat. However, this loss would be offset by the construction of the containment barrier jetty, which would create approximately 0.39 acres of similar habitat. The construction of the containment jetty would result in an additional 0.20 acres of subtidal man-made habitat on the site, which would reduce impacts to less than significant.

Mitigation Measures

The following mitigation measures are required to reduce significant direct and indirect impacts to the California least tern, eelgrass habitats, jurisdictional waters and San Diego Bay surface water to a level below significance. The measures are organized to correlate to the various significant impacts identified above by issue area.

Threshold 5.10.4.1: Candidate, Sensitive or Special Status Species Indirect Impacts

Mitigation Measure 5.10.4.1: **California Least Tern.** In order to reduce increases in water turbidity which may affect foraging opportunities for the California least tern, the construction contractor shall implement mitigation measures 5.10.9.1 through 5.10.9.1.5 found in Section 5.10.9, Hydrology and Water Quality, of this EIR.

Threshold 5.10.4.2, 5.10.4.3, and 5.10.4.5: Invasive Species, Eelgrass & Bay Surface Water; Jurisdictional Waters; Local Policies and Ordinances

Mitigation Measure 5.10.4.2: Prior to the start of any phase of construction, a pre-construction survey for the invasive alga, *Caulerpa taxifolia*, shall be performed by a qualified biologist retained by the construction contractor. This survey shall be conducted in conformance with the *Caulerpa* Control Protocol version 3 (National Marine Fisheries Service 2007), prior to any bottom disturbing events. If *Caulerpa taxifolia* is not found, then construction can proceed. If it is found, then the following shall be undertaken by the project applicant to eradicate this species in the construction area prior to beginning any bottom disturbing activities, including but not limited to:

a) The disturbing activity shall not be conducted until such time as the infestation has been isolated, treated or the

risk of spread from the proposed disturbing activity is eliminated;

b) National Oceanic and Atmospheric Administration (NOAA) Fisheries/CDFG Contacts shall be notified within 24 hours of the discovery;

c) Within 96 hours of notification, the extent of the *Caulerpa* infestation within the site APE shall be fully documented. *Caulerpa* eradication activities shall be undertaken using the best available technologies at the time and will depend upon the specific circumstances of the infestation. This activity may include in situ treatment using contained chlorine applications, and may also incorporate mechanical removal methods. The eradication technique is subject to change at the discretion of NOAA Fisheries and CDFG and as technologies are refined.

Mitigation Measure 5.10.4.3: **Eelgrass and Local Policy Conflicts.** In accordance with the current Southern California Eelgrass Mitigation Policy, approximately 7.22 acres of eelgrass shall be replaced by the construction contractor and a qualified biologist through a transplant method to achieve a 1.2:1 replacement ratio for the loss of 6.01 acres of existing eelgrass, through the following methods. Prior to implementation of these methods, a pre- and post-construction survey shall be conducted by a qualified biologist, retained by the construction contractor, within 30 days of project commencement and completion. These surveys shall be used to determine specific mitigation:

a) Mitigation methods for eelgrass shall include creating eelgrass habitat at one or more locations within the San Diego Bay by raising the bay floor elevation to approximately -5 ft MLLW with dredged materials and planting eelgrass on the elevated plateau. Replacement mitigation for eelgrass may occur in one or more of the following locations, as approved by the resource agencies NMFS, USFWS, EPA, CDFG and ACOE: 1) Naval Training Center (NTC) channel; 2) Harbor Island – West Basin; 3) Adjacent to Convair Lagoon; 4) A-8 Anchorage; 4) South Bay Borrow Site; 5) South Bay Power Plant Channel; 6) South Bay Power Plant; and 7) Emory Cove Channel. Brief descriptions of

these potential mitigation sites are described in Table 5-25 below.

b) An eelgrass mitigation plan shall be prepared and approved by the ACOE, acting in conjunction with the resource agencies, including NMFS, USFWS, EPA, and the CDFG. The plan shall include details and descriptions regarding the chosen mitigation site, transplant methods, program schedule, 5-year monitoring program, success criteria, and actions to undertake for failed mitigation goals, consistent with the Southern California Eelgrass Mitigation Policy. Transplantation of eelgrass shall occur only with the written approval of the CDFG.

Table 5-25: Potential Mitigation Sites for Eelgrass Loss

Potential Eelgrass Mitigation Site	Description
Former Naval Training Center Channel	The former Naval Training Center (NTC) Channel is located north of North Harbor Drive Boulevard. The channel extends approximately 1 mile and covers approximately 54 acres. The sides of the NTC channel consist of rip-rap, and the majority of the substrate consists of soft bay muds. The average depth of the channel is approximately -12 to -14 ft MLLW; however, the edges of the channel are shallow and support extensive eelgrass beds. Common fauna associated with shallow bay mud habitat include tube dwelling anemones, arthropods (e.g., ghost shrimp, *Callianassa*), round stingray (*Urobatis halleri*), barred and spotted sand bass (*Paralabrax nebulifer* and *P. maculatofasciatus*), and midshipman (*Porichthys myriaster*). However, this mitigation site would accomplish only part of the 7.22 mitigation requirement, due to a navigational hazard constraint that would occur from narrowing the navigational NTC channel.
Harbor Island – West Basin	The west basin of Harbor Island habitat includes shoreline stabilized with rip-rap and adjacent subtidal bay mud habitat. The average depth within the basin is approximately -10 to -12 ft MLLW, with extensive eelgrass beds in the northern portion and marina development along the south and eastern portions of the basin. The placement of suitable dredge material at the Harbor Island – West Basin could be designed to accommodate eelgrass habitat (to -5 ft MLLW). However, this mitigation site would likely accomplish only part of the 7.22 mitigation requirement, due to navigational hazard constraints that would occur from narrowing the navigational channel associated with Harbor Island West Marina.
Adjacent to Convair Lagoon	Adjacent to Convair Lagoon, the habitat area includes shoreline stabilized with rip-rap and adjacent subtidal bay mud habitat. The average depth in the area is approximately -10 to -12 ft MLLW, with eelgrass beds just offshore of the Coast Guard facility, and patchy eelgrass located further offshore. The placement of suitable dredge material could be designed to accommodate eelgrass habitat (to -5 ft MLLW). However, this mitigation site would likely accomplish only part of the 7.22 mitigation requirement, due to navigational hazard constraints associated with the A-9 Anchorage.

Table 5-25: Potential Mitigation Sites for Eelgrass Loss

Potential Eelgrass Mitigation Site	Description
A-8 Anchorage	A-8 Anchorage is an approximately 80 acre area adjacent to the Sweetwater Channel and was the only long-term free anchorage area available on the west coast. In June 2006, the San Diego Board of Port Commissioners authorized the closure of the A-8 Anchorage, and complete closure occurred on October 1, 2008. The water depth within A-8 Anchorage ranges from -10 to -12 ft MLLW, and the substrate generally consists of soft-bottom mud habitat. The area does not currently support eelgrass. The soft mud-bottomed site has been the focus of extensive debris mapping and clean up. In general, the site lacks substantive marine epibenthic activity although sunken vessel hulls provide hard structure and relief that supports a greater aggregation of fish and invertebrates than the otherwise featureless bottom. Barred sand bass are relatively common around the sunken vessel hulls, *Sargassum* growing on the hulls supports use by giant kelpfish. Opaleye are found in small schools around a few portions of the site. Pacific seahorse is also represented in the hard structure debris fields. The placement of suitable dredge material at the A-8 Anchorage could be designed to accommodate the 7.7 acres of eelgrass habitat (to -5 ft MLLW) required for mitigation.
South Bay Borrow Site	The South Bay Borrow Site was created as mitigation for eelgrass impacts from the National City Marine Terminal Extension Project, and is a 20-acre sediment borrow pit within south San Diego Bay, partially filled with sandy material to create a suitable eelgrass mitigation area. The eelgrass mitigation area was completed in early 2004. Investigations of the site following construction indicate that most of the borrow pit was filled to elevations of -6 ft MLLW, although there were several areas where the depths were greater than -9 ft MLLW. Routine monitoring conducted in the area of the borrow pit in February 2006, revealed that the transplant site was performing poorly and signaled the need for a supplemental transplant. Additional planting was completed in May 2006, and was subsequently surveyed for eelgrass coverage and density at the 24-month post-transplant mark. During a 36-month monitoring survey, a total of 0.03 acres of eelgrass was mapped within the control site, but there was no eelgrass identified within either the Mitigation Bank Site or the Mitigation Site. The site is not performing as desired at the present time, however, future efforts and a change in environmental conditions may allow the eelgrass to establish and then serve its intended purpose. This site could accommodate the mitigation requirement of 7.7 acres of eelgrass habitat.
South Bay Power Plant	The South Bay Power Plant (SBPP) is a non-operational electric power generating facility located on the southeastern shoreline of San Diego Bay. The aquatic habitats in the vicinity of the SBPP are characteristic of protected inshore marine environments. The flora and fauna of the region consists of communities living above, on, and within soft benthic substrates. Benthic substrates are composed mostly of alluvial sediments, including fine-grained sand, silt, and clay. Some expanses of bottom along the western shoreline of the bay, however, are dominated by larger-grained sand. Because of the absence of freshwater inflow, plant and animal communities are typical of marine and higher salinity estuarine environments. Aquatic habitats include subtidal areas, eelgrass beds, mudflats, and salt marshes. This site could accommodate the mitigation requirement of 7.7 acres of eelgrass habitat.
South Bay Power Plant Intake Channel	The intake channel to the SBPP is located north of the Chula Vista Wildlife Refuge and consists of slightly deeper water (approximately -10 to -12 ft MLLW) than the surrounding areas that support extensive eelgrass beds. The placement of suitable dredge material could be designed to accommodate eelgrass habitat (to -5 ft MLLW), mimicking the surrounding area. This site could accommodate the mitigation requirement of 7.7 acres of eelgrass habitat.
Emory Cove Channel	Emory Cove, an inlet in the southwest corner of San Diego Bay, served as an anchorage until 1987 when the District began enforcing rules making it unlawful to anchor, moor, make fast to the bottom, strand or ground (any) vessel or structure within South San Diego Bay, including Emory Cove. The Emory Cove anchorage was subsequently cleaned up in the early 1990s. The channel approaching Emory Cove is slightly deeper (approximately -10 ft MLLW) than the adjacent area that supports extensive eelgrass beds. The placement of suitable dredge material could be designed to accommodate eelgrass habitat and is large enough to meet the entire mitigation requirement.

Mitigation Measure 5.10.4.4: **Jurisdictional Waters and San Diego Bay Surface Loss.** New bay habitat shall be created within an alternative location of the San Diego Bay via excavation of shoreline and creation of tidal influence in previously non-tidal areas. The mitigation ratio for the loss of 8.5 acres of intertidal and subtidal habitats would occur at a 1:1 ratio. The coastal salt marsh habitat shall be mitigated at a 4:1 ratio (i.e., creation of 0.44 acres of salt marsh habitat for 0.11 acres impact). This shall include:

a. The removal and disposal or reuse of historic fills;

b. Grading the site to a desired hydrologic condition of channels, subtidal basins, and intertidal flats in order to support desired compensatory habitat; and

c. Planting pilot vegetation plots to allow for natural expansion of marshland vegetation.

The creation of new bay surface water habitat may occur in one or more of the following locations, as approved by the resource agencies NMFS, USFWS, EPA, CDFG and ACOE: 1) Grand Caribe Isle in the Coronado Cays; 2) D Street Fill just across the Sweetwater Channel from the National City Marine Terminal; 3) the South Bay Power Plant; 4) the Salt Works; and/or; 5) Pond 20 adjacent to the Salt Works. The approved mitigation site shall be lowered from upland elevations to create intertidal and subtidal habitats, except for the South Bay Power Plant, which would require filling the existing intake and discharge channels of the power plant to create tidal lands. The mitigation ratio for intertidal and subtidal habitats would occur at a 1:1 ratio; however, the coastal salt marsh habitat would have to be mitigated at a 4:1 ratio. These ratios would require the replacement of approximately 3.9 acres of intertidal habitat, 4.49 acres of shallow subtidal habitat, 0.31 acres of moderately deep and deep subtidal habitat (which would most likely be replaced as intertidal habitat due to habitat value) and 0.44 acres of coastal salt marsh habitat. Brief descriptions of the potential mitigation locations for jurisdictional and San Diego Bay surface loss impacts are described Table 5-26.

Table 5-26: Potential Mitigation Sites for San Diego Bay Surface Water Loss

Potential Surface Bay Loss Mitigation Site	Description
Grand Caribe Isle	The Grand Caribe Isle is located on South Grand Caribe Isle in the Coronado Cays. The South Grand Caribe Isle site is a disturbed upland area that would be regraded to accommodate wetland, intertidal marsh, and subtidal habitat. This area is located adjacent to a small passive use native plant park and has recently been used as a borrow site for the former Campbell Shipyard sediment remediation project sediment sand cap. The on-site soil consists of loamy sand from marine deposits. The Bay surrounds the site, with the peninsular connection being isolated from other native upland habitats by the Coronado Cays residential development. The biological resources on the site are dominated by common, widely distributed species, many of which are representative of disturbed lands. Species well represented on the site include salt heliotrope (*Heliotropium curvassavicum*), slender-leaved iceplant (*Mesembryanthemum nodiflorum*), garland (*Chrysanthemum coronarium*), and red-stem filaree (*Erodium cicutarium*).
D Street Fill	D Street Fill is located immediately south of the National City Marine Terminal (NCMT) across the Sweetwater River channel. The site is routinely cleared/disked in an effort to provide nesting habitat for the California least tern (*Sterna antillarum browni*). As a result, the area is mostly devoid of vegetation. Plant species that occur are limited to native and non-native species that are typical of disturbed sandy soils found in the area. These species include opportunistic native species such as woolly lotus (*Lotus heermannii* var. *heermannii*), salt heliotrope, beach evening primrose (*Camissonia cheiranthifolia* ssp. *suffruticosa*), coyote brush (*Baccharis pilularis*), coast woollyheads (*Nemacaulis denudata* var. *dunudata*), and fragrant everlasting (*Pseudognaphalium beneolens*). Non-native plant species include hottentot-fig (*Carpobrotus edulis*), slender-leaved iceplant, garland, pineapple weed (*Amblyopappus pusillus*), and red-stem filaree. Bird species that utilize this area for foraging and/or nesting include horned lark (*Eremophila alpestris*); Northern rough-winged swallow (*Stelgidopteryx serripennis*); and during the winter, American pipet (*Anthus rubescens*) (pers.com Robert Patton). The gull-billed tern (*Sterna nilotica*), a species that predates on California least tern young, is also known to forage over the site.
Salt Works	Marsh lands around the mouth of the Otay River in the shallow, south end of San Diego Bay were converted to salt evaporation ponds in the late 1800s. Over the past century, various internal berms have been constructed, repaired, and removed by operational changes and flooding. These changes have resulted in changing topographic conditions that have resulted in a number of distinct pond cells. The salt ponds consist of shallow, open water cells of different salinity levels interspersed with mudflats, dry dikes, and salt marsh. The salt pond levees consist primarily of unvegetated uplands. The lack of vegetation on many of the levee tops is the result of ongoing maintenance activities associated with the salt operation, as well as the high salinities that exist in the vicinity of the levees. The nature of the salt extraction process has facilitated use of this artificial habitat by many shorebirds, sea birds, and waterfowl. It represents one of the few large feeding, roosting, and nesting areas remaining along the urbanized southern California coast.
Pond 20	The Pond 20 site, located south of the Salt Works is defined by internal dikes that include three smaller pond cells (Ponds 20A, 20B, and 20C). Pond 20 is isolated from tributary fresh or saltwater surface input and experiences occasional storm runoff from the internal pond basin and a roadway surface drain from Palm Avenue. Seasonally, water levels in the pond fluctuate significantly and waters are highly saline due both to the pond's history as a salt concentrator and the continued closed system evaporative processes occurring in the pond today. Years of drought and heavy rainfall influence the levels of standing water in the pond and the rates of fluctuation of water surface levels. At present, limited standing water is found along the lower-lying "channels" that parallel the dike and generally below a nearly complete salt crust. These deeper channels are believed to be borrow areas for the reconstruction and repair of the pond containment dikes. These channels also historically enhanced water collection for pumped transfers within the salt pond system.

Impacts and Mitigation for Biological Resources Mitigation Measure Implementation. The implementation of the biological resources mitigation measures, described above as 5.10.4.3 and 5.10.4.4, would result in potential environmental impacts. The impacts anticipated include:

1. Air pollutant emissions associated with excavation and fill placement construction activities;
2. Water quality impacts to San Diego Bay through the placement of fill to create plateaus for eel grass beds depending on the mitigation site or sites selected;
3. Indirect impacts to the endangered California least tern for the D Street Fill, Pond 20 and Salt Works intertidal, subtidal and surface water creation sites; and
4. Indirect impacts to the endangered Pacific green sea turtle from water turbidity impacts.

Each of these impacts and mitigation measures are briefly discussed below.

Air Pollutant Emissions. Air Pollutant emissions from construction activities include excavation to create intertidal, subtidal and surface water creations sites, and placement of fill to create eel grass beds. The assumptions for these activities include 8 hours a day for an excavator, a tug boat pulling a barge and a clam shell crane. The daily emissions associated with these activities and greenhouse gas emissions are discussed below.

Tidal and Salt Marsh Habitat Creation. Mitigation for tidal and salt habitat would involve the creation of 4.2 acres of intertidal habitat, 4.5 acres of shallow subtidal habitat, and 0.44 acres of coastal salt marsh habitat, for a total of 9.14 acres of habitat creation. A total of 274,000 cubic yards (cy) of sediment would be excavated. 82,000 cy would be transferred to a barge using a crane. This sediment would be used to create eel grass habitat and would be stored on the barges until the commencement of eel grass habit construction. 192,000 cy of sediment would be transported via truck to the Otay landfill. Construction would take approximately nine months. Maximum daily construction emissions that would result from habitat construction are shown in Table 5-27. As shown in this table, creation of tidal and salt marsh habitat would not exceed the significance thresholds for any criteria pollutants. All air pollutant emissions would be less than significant.

Eelgrass Habitat Creation. Creation of 7.2 acres of eelgrass habitat would require the import of approximately 82,000 cy of dirt to create a bay bottom that is a suitable depth for eel grass. The dirt would be transported by barge from the tidal and salt marsh habitat excavation sites. One tug boat would be required per day and would travel four hours to and from the site, for a total of 8 hours of operation. A clamshell crane would be used to transfer the dirt from the barge to the habitat site. Construction would take approximately five months. Maximum daily construction emissions that would result from eelgrass habitat

construction are shown in Table 5-28. As shown in this table, creation of eelgrass habitat would not exceed the significance thresholds for any criteria pollutants. All air pollutant emissions would be less than significant.

Table 5-27: Tidal and Salt Marsh Habitat Creation Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}[(1)]**	**$PM_{2.5}$[(1)]**
Tidal and Salt Marsh Habitat Construction	26	60	6	0	63	15
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter

1. Estimates of particulate emissions take into account application of soil stabilizers to inactive areas during grading in mandatory compliance with San Diego Air Pollution Control District (SDAPCD) Rule 55.

Source: URBEMIS, 2007. See Appendix J for data sheets.

Table 5-28: Eelgrass Creation Maximum Daily Emissions

Construction Phase	Pollutant Emissions (pounds/day)					
	CO	**NO_X**	**VOC**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment Operation	2	6	1	0	1	1
Tug Boat Operation	15	81	3	1	3	2
Total Emissions	*17*	*87*	*4*	*1*	*4*	*3*
Significance Threshold	**550**	**250**	**137**	**250**	**100**	**55**
Significant Impact?	No	No	No	No	No	No

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS, 2007. See Appendix A for data sheets.

Greenhouse Gas Emissions. Greenhouse gas (GHG) emissions from construction of mitigation habitat are calculated based on the construction assumptions described above. Total GHG emissions are shown in Table 5-29. Construction of the salt and tidal marsh habitat would result in 935 metric tons (MT) carbon dioxide equivalent (CO_2e). Construction of eel grass habitat would result 446 MT CO_2e. Total GHG emissions from habitat construction would be 1,381 MT CO_2e. As discussed in Section 5.10.7, Greenhouse Gas Emissions/Climate Change, GHG emissions from construction should be amortized over a 30 year period to determine the long-term annual contribution to the GHG inventory. As shown in Table 5-29, the annual GHG contribution of GHGs from habitat construction would be 46 MT CO_2e. Therefore, construction GHG emissions would not exceed the 900 MT CO_2e threshold established by the County of San Diego. Impacts would be less than significant.

Water Quality. The water quality impacts to San Diego Bay are associated with the placement of material to create subsurface plateaus to plant eelgrass. These impacts would be mitigated through implementation of the water quality mitigation measures 5.10.9.1 through 5.10.9.5, in Section 5.10.9, Hydrology and Water Quality, and mitigation measures 4.2.1 through 4.2.13, in Section 4.2, Water Quality.

Table 5-29: Estimated Annual GHG Emissions from Habitat Construction

Emission Source	GHG Emissions (Metric Tons CO_2e)
Tidal and Salt Marsh Habitat Creation	935
Eel Grass Habitat Creation	446
Total Construction Emissions	**1,381**
Amortized Construction Emissions	**46**

Source: URBEMIS 2007, EPA 2009
Note: Amortization is based on a 30 year lifetime.

California Least Tern Indirect Impacts. Mitigation for indirect impacts associated with construction activities include the water quality mitigation measures identified above, which reduce sediment turbidity through the use of silt curtains and other BMPs.

Pacific Green Turtle Indirect Impacts. The indirect construction related water quality impacts to the endangered Pacific Green Turtle would be mitigated through the implementation of the water quality mitigation measures 5.10.9.1 through 5.10.9.5, in Section 5.10.9, Hydrology and Water Quality, and mitigation measures 4.2.1 through 4.2-13, in Section 4.2, Water Quality.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for biological resources varies depending on the type of biological resource that could be impacted. The geographic scope for each of the five biological resource topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.4.1: Candidate, Sensitive or Special Status Species. The geographic scope of the cumulative impact analysis for candidate, sensitive or special status species is the San Diego Bay. Past and present cumulative projects in the region, some of which are identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, have resulted in development that has caused the direct loss of plant and animal species. In combination, these impacts resulted in the populations of many plant and animal species to drop below self-sustaining levels. These plants and animals have since been identified as candidate, sensitive, or special status by the CDFG, USFWS and local and regional plans and

policies. As indicated by their sensitive status, a significant cumulative impact has already occurred from the loss of sensitive plant and animal populations as a result of development of past and present cumulative projects. Future cumulative projects also have the potential to further impact sensitive species. For example, 12 of the 27 cumulative projects identified in Table 5-8 are located on the San Diego International Airport Property and have the potential to directly or indirectly impact least tern's, which nest on the San Diego International Airport site. Therefore, a significant cumulative impact would occur to candidate, sensitive or special status species.

As discussed above, implementation of the Convair Lagoon Alternative would result in indirect impacts to the California Least Tern, a federally endangered and state endangered species. Therefore, the Convair Lagoon Alternative would result in indirect impacts to a special status species. However, with implementation of mitigation measure 5.10.4.1, the alternative's indirect impacts would be reduced to a level below significance and the alternative's contribution to the regional impact would not be cumulatively considerable because it is a fully mitigated indirect impact.

Threshold 5.10.4.2: Riparian Habitat and Other Sensitive Communities. The geographic scope of the cumulative impact analysis for riparian habitat and other sensitive communities is San Diego Bay. Past and present cumulative projects in the geographic scope of the cumulative impact analysis, some of which are identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, have resulted in development that caused the disturbance or direct loss of riparian habitat and sensitive natural communities, including surface water and eelgrass beds that support sensitive plant and wildlife species. In combination, these impacts resulted in the loss or disturbance of habitat communities so that areas of these communities are no longer able to support viable populations of sensitive or characteristic plant and wildlife species. Due to their importance to biodiversity in the region, a significant cumulative impact has occurred from the loss of riparian habitat and other sensitive natural communities, including surface water and eelgrass beds, from past development. Future development also has a potential to further impact sensitive natural communities. For example, the Commercial Fisheries Revitalization Plan, identified as a cumulative project in Table 5-8, would support and increase commercial fishing operations in the bay and could result in direct or indirect impacts to sensitive natural marine communities or eelgrass from an increase in coastal public access facilities and the expansion of commercial fishing facilities, such as docks. Therefore, a significant cumulative impact would occur to other natural communities.

As discussed above, implementation of the Convair Lagoon Alternative would result in the direct loss of San Diego Bay surface water and eelgrass, which are considered sensitive communities. Therefore, the Convair Lagoon Alternative would result in a significant cumulative impact to these communities. However, with implementation of mitigation measures 5.10.4.2 through 5.10.4.4, the alternative's direct impacts would be reduced to a level below significance and the alternative's contribution to the regional impact would not be cumulatively considerable.

Threshold 5.10.4.3: Jurisdictional Waters. The geographic scope of the cumulative impact analysis for jurisdictional waters is the San Diego Bay because it is part of a defined aquatic ecosystem. Past and present cumulative projects in the geographic scope of the cumulative impact analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, have resulted in development that caused substantial adverse effect on wetlands, waters, or riparian resources under the jurisdiction of ACOE, CDFG, and/or San Diego Water Board through direct removal, filling, hydrological interruption, or other means. In combination, these impacts resulted in the loss or disturbance of wetland resources so that these communities are no longer able to support viable populations of characteristic riparian species, which is considered a significant cumulative impact. Future cumulative development also has a potential to further impact jurisdictional waters. For example, the Marina Green Project would create a new shoreline promenade that could potentially directly or indirectly impact jurisdictional waters from water related construction activities such as dredging and filling. Therefore, a significant cumulative impact would occur to jurisdictional waters.

As discussed above, implementation of the Convair Lagoon Alternative would result in direct impacts to 9.85 acres of jurisdictional waters, protected under the Clean Water Act. Therefore, impacts to jurisdictional waters from the Convair Lagoon Alternative would be significant. However, with implementation of mitigation measures 5.10.4.2 through 5.10.4.4, the alternative's direct impacts would be reduced to a level below significance and the alternative's contribution to the regional impact would not be cumulatively considerable.

Threshold 5.10.4.4: Wildlife Movement Corridors. The geographic scope of the cumulative impact analysis for wildlife movement corridors includes a 1-mile radius surrounding the project site, within the San Diego Bay. According to the USFWS, the entire California Coast, including San Diego Bay, is part of the Pacific Flyway (USFWS, 2010). The Pacific Flyway is one of four geographical patterns in the United States that represent the major migratory patterns of waterfowl through the continent. Past development in the geographic scope of the cumulative impact analysis has resulted in development that has restricted wildlife access between habitats, directly by removing habitat and indirectly through increases in traffic that create a barrier to wildlife. In combination, past development resulted in the loss of wildlife movement corridors, which are important to the viability of wildlife species populations by ensuring the exchange of genes between populations to maintain genetic diversity and providing access to habitat suitable for the reproduction of species. Future cumulative development within the geographic scope of cumulative analysis, identified in Table 5-8, are located in a highly developed urban area that consists mainly of industrial and commercial land uses. Future cumulative projects in this area would result in the redevelopment of already disturbed areas, and would not result in the loss of any natural, undeveloped land that functions as a significant wildlife movement corridor. Therefore, future cumulative projects within the geographic scope of cumulative impact analysis would not result in a significant cumulative impact to wildlife movement corridors because a

significant cumulative impact to wildlife movement corridors already occurred due to past development in the area and this alternative would not result in a considerable contribution to this existing cumulative impact.

As discussed above, implementation of the Convair Lagoon Alternative would not interfere substantially with the movement of regional wildlife species because a large presence of armored shoreline exists in the area surrounding the Convair Lagoon Alternative site. Cumulative impacts to local wildlife movement corridors would be less than significant from the Convair Lagoon Alternative because it would not result in a cumulatively considerable contribution to this cumulative impact.

Threshold 5.10.4.5: Local Policies and Ordinances. The geographic scope of the cumulative impact analysis for local policies and ordinances includes lands under the jurisdiction of the San Diego Unified Port District. Cumulative projects would be required to demonstrate compliance with the applicable local biological resource policies and ordinances as part of the CEQA process prior to project approval. Therefore, a significant cumulative impact would not occur.

As discussed above, the Convair Lagoon Alternative would result in a conflict with the Southern California Eelgrass Mitigation Policy, which would result in a significant impact. However, with implementation of mitigation measure 5.10.4.2 through 5.10.4.4, impacts would be reduced to a level below significance. Therefore, the Convair Lagoon Alternative would not contribute to a significant cumulative impact.

Level of Significance After Mitigation

Upon implementation of mitigation measures 5.10.4.1, 5.10.4.2, 5.10.4.3, and 5.10.4.4 all significant impacts related to biological resources would be reduced to a level below significance.

Significant Unavoidable Adverse Impacts

There are no significant and unavoidable adverse impacts to biological resources from implementation of the Convair Lagoon Alternative.

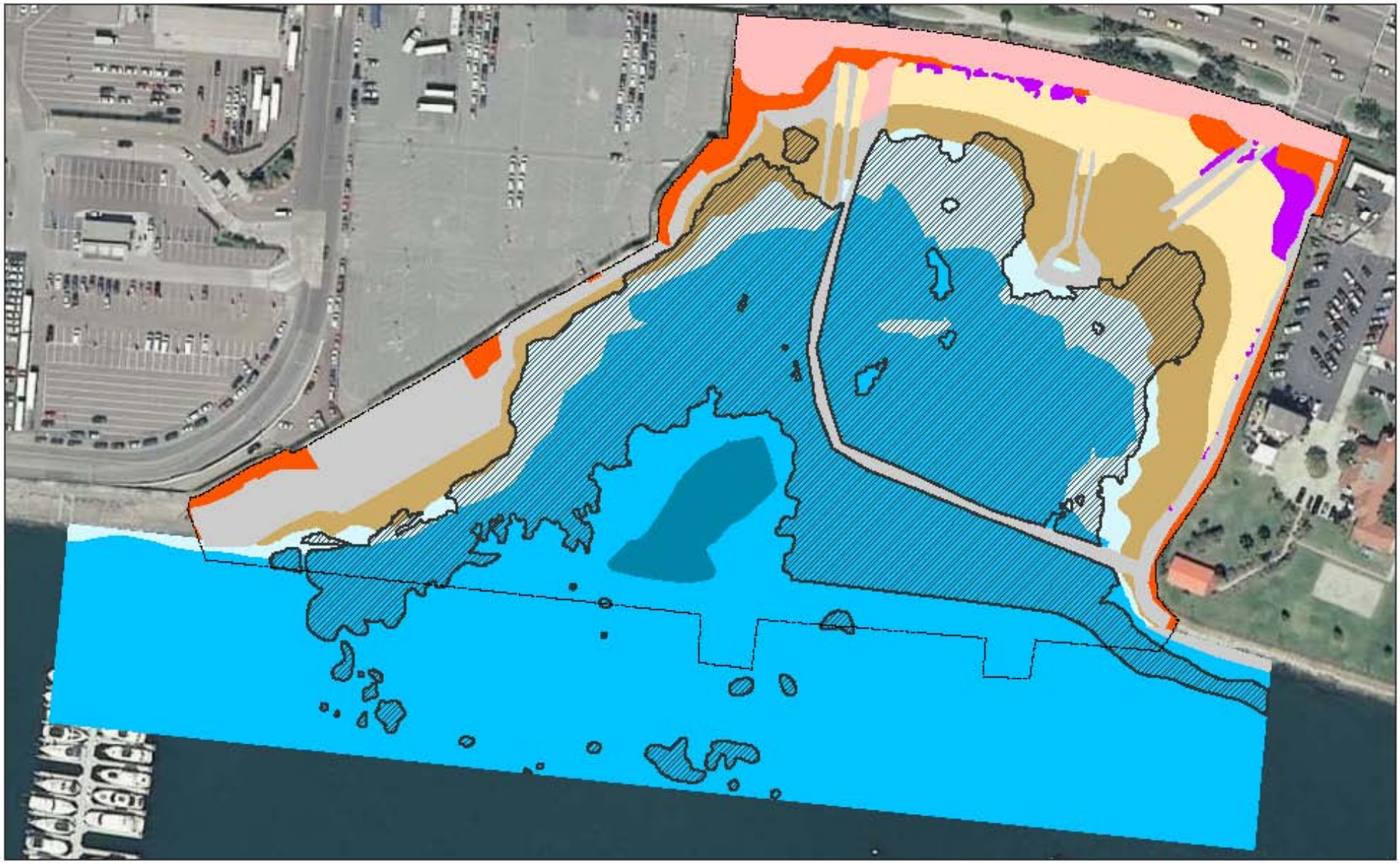

FIGURE 5-8

Convair Lagoon Alternative
Existing Habitat Map

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SOURCE: Merkel & Associates 2011

LEGEND

Site Boundary
direct seigrass impacts
indirect seigrass impacts
upland impacts
water impacts
created upland
created intertidal
created shallow subtidal

Note: Directions, dimensions and locations are approximate.

FIGURE 5-9

Convair Lagoon Alternative
Biological Resource Impacts

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5.10.5 Cultural Resources

This section addresses cultural and paleontological resources on the Convair Lagoon Alternative site. Cultural resources include both archaeological and historic sites, buildings, structures, objects and human remains. Paleontological resources include the remains and/or traces of prehistoric life (exclusive of human remains, artifacts or features), including the localities where fossils were collected and the sedimentary rock formations in which they were formed. This section identifies existing cultural and paleontological resources, analyzes the potential impacts that may occur under the Convair Lagoon Alternative, recommends mitigation measures to reduce or avoid impacts to these resources and examines levels of significance after mitigation. The information in this section is based on the *Convair Lagoon Architectural Resources Evaluation and Assessment of Effects* prepared by ASM Affiliated in April 2011, which is included as Appendix K to this EIR.

5.10.5.1 Existing Environmental Setting

The following discussion identifies the archeological, historical and paleontological resources that currently exist on the Convair Lagoon Alternative site.

Archeological Resources

The prehistory of San Diego County provides a background for understanding the archeology of the general area surrounding the Convair Lagoon Alternative site. The earliest accepted archeological manifestation of Native Americans in the San Diego area is the Paleoindian San Dieguito complex, dating to approximately 10,000 years ago. The material culture of the San Dieguito complex consists primarily of scrapers, scraper planes, choppers, large blades, large projectile points and crescentic stones. Tools and debitage made of fine-grained green metavolcanic material, locally known as felsites, were found at many San Dieguito sites. Often these artifacts were heavily patinated. Felsite tools, especially patinated felsites, came to be seen as an indicator of the San Dieguito Complex. Sleeping circles, trail shrines and rock alignments have also been associated with early San Dieguito sites.

The traditional view of San Diego prehistory has the San Dieguito complex followed by the Archaic state La Jolla complex at least 7,000 years ago, possibly as long as 9,000 years ago. The La Jolla complex is part of the Encinitas tradition. The Encinitas tradition is generally recognized by milling assemblages in shell middens, often near sloughs and lagoons. Crude cobble tools, especially choppers and scrapers, characterize the La Jolla complex. Basin mutates, manos, discoidals, a small number of Pinto series and Elko series points, and flexed burials are also characteristic.

The Late Prehistoric period is represented by the San Luis Rey complex in northern San Diego County and the Cuyamaca complex in the southern portion of the county. The Cuyamaca complex represents the Yuman forebarers of the Kumeyaay. The Cuyamaca complex is represented by defined cemeteries away from living areas, the use of grave markers, cremations placed in urns, use of specially made mortuary offerings, cultural

preference for side-notched points, substantial numbers of scrapers and scraper planes, wide range of ceramic forms and items, steatite industry, clay lined hearths, and a high frequency of milling stones.

The Convair Lagoon region is within lands that have traditionally been inhabited by the Kumeyaay Indians, also known as Diegueno or Ipai/Tipai. Two enthohistoric village sites associated with Mission San Diego de Alcala existed in Mission Valley: Cosou and Nipaquay. Mission Valley lies approximately two miles north of the Convair Lagoon site (Affinis, 2006).

Historic Resources

The general area near the Convair Lagoon site was once home to major aircraft manufacturing companies such as Teledyne-Ryan Aeronautical Company and Convair. The following section provides information on San Diego's aviation history, in addition to providing detailed information on two on-site features, a seaplane ramp and a pier.

San Diego's Aviation History. The Convair Lagoon is located directly south of the San Diego International Airport, formerly Lindbergh Field. Lindbergh Field was formed in part from the development of an independent airline company called Ryan Airlines. Ryan Airlines operated an airline taxi service between San Diego and Los Angeles in 1924 and began the first year-round, scheduled airline service in the U.S. Shortly after, Ryan Airlines shifted their focus from airline taxi service to aircraft manufacturing. They subsequently constructed the *Spirit of St. Louis,* which was flown by Charles Lindbergh and in the spring of 1927 across the Atlantic Ocean. Shortly after the famous flight that made aviation history, the City of San Diego dredged an area next to the San Diego Bay and constructed Lindbergh Field. As a result, many aircraft companies re-located to the Lindbergh Field area from the 1920s to the late 1990s, including Convair.

San Diego was a major player in the aircraft industry in the mid-twentieth century and one of the largest employers in the city was Convair. Convair was founded in 1923 in Rhode Island and specialized in developing and designing aircraft vessels for the early aeronautics industry. Convair (formerly Consolidated) designed the first line of Long-Range flying boats called the XPY-1. Flying boats were an innovative technology in the early history of aircraft manufacturing and entailed an aircraft vehicle that had the ability to navigate water. The XPY-1 was known as the "largest flying boat built in the U.S.A." Convair designed and redesigned several flying boat models for the military.

Convair relocated from the east coast to San Diego in 1935. Its first buildings were constructed along Pacific Coast Highway next to Sassafras Street. The demand for military aircraft in World War II (WWII) proved to be a boon for the aircraft industry and for Convair, the seaplane industry was a particularly lucrative niche. By 1943, the company had 13 locations throughout the U.S. and a payroll of 101,637. In 1954, Convair merged with and became a division of General Dynamics. The San Diego Convair complex was primarily

located west of the Convair Lagoon and south of Harbor Drive and Lindbergh Field, with a few buildings located elsewhere on the northern side of the air strip.

According to Sanborn maps and the San Diego Air & Space Museum online photo archives, sometime around 1957, the seaplane ramp and pier were constructed in the Convair Lagoon as part of a larger project that involved dredging up the bay to construct an area of land south of N. Harbor Drive on which the seaplane ramp is located. Harbor Island was dredged and constructed as an extension to this project in 1961. The pier and seaplane ramp appear to be the only structures that remain from the Convair complex today. A separate Teledyne-Ryan complex was located north of the Convair complex, on the northern side of Harbor Drive. Redevelopment in this area has resulted in the demolition of the majority of the buildings and structures from both of these complexes.

Convair Lagoon Pier. Figure 5-10 identifies the existing, on-site Convair Lagoon Pier. The Convair Lagoon Pier was constructed by the Convair aviation company circa 1957 and is located south of N. Harbor Drive on the San Diego Bay. It was likely constructed when the neighboring seaplane ramp located to the west of the pier was constructed circa 1957. It is a concrete pier approximately 120 feet (ft.) long and 10 ft. wide. Scored concrete walls support most of the pier length. At the outer end of the pier (waterside), four concrete pilings support the pier. There is one narrow projection on the east side of the pier, supported by two concrete pilings. Two large metal sheets cover a portion of the base of the pier walkway.

Convair Seaplane Ramp. Figure 5-10 identifies the existing, on-site Convair Seaplane Ramp. The Convair Seaplane Ramp was constructed by Convair circa 1957 and is located near the southwest corner of the site. It is currently located adjacent to a rental car lot, behind a chain link fence. The ramp is approximately 65 ft. long (from top of ramp to sea level) and 195 ft. wide. It is made of concrete. The seaplane ramp is intact but is no longer in use. According to a historic photograph from circa 1957, there was originally a narrow ancillary structure used for watercraft and possibly as a parking facility for seaplanes, which was attached to the ramp via a narrow driveway that jutted out into the bay. This ancillary structure no longer exists. Historically, the seaplane ramp was used as a transport connector between the San Diego Bay and the aircraft road surface/runway on land.

Paleontological Resources

The Convair Lagoon Alternative site was originally mudflats and open water of the San Diego Bay. Decades of dredging and placement of fill soils have built the surrounding areas to its current topography. The near-surface soil layers of the Convair Lagoon site consist of imported sand as fill used to cap PCB contaminated sediments. Recent bay deposits underlie the sand cap and PCB contaminated sediment. Bay deposit materials typically consist of interlayered dark gray, wet, loose, fine silty sand and silt and soft, sandy clay. Old paralic deposits underlie the bay deposits and typically consist of medium dense sand and stiff clay.

Both bay deposits and old paralic deposits have a high potential for paleontological resources to occur (CSD, 2007).

5.10.5.2 Regulatory Setting

Cultural and paleontological resources in the region are protected through a number of regulations at the federal, state, and local levels. Below is a listing and brief description of some of the various regulations and standards that relate to cultural and paleontological resources within the region.

Federal

Historic Sites, Buildings, Objects, and Antiquities Act. The Historic Sites, Buildings, Objects, and Antiquities Act of 1935 states that it is the national policy to preserve for the public use historic sites, properties, buildings, and objects of national significance. It gives the National Park Services (NPS) broad powers to execute the policy on both federal and non-federal lands. The Act also set up an advisory board to aid the Secretary of the Interior in implementing the Act. The National Natural Landmarks (NNL) Program was established in 1962 to recognize and encourage the conservation of outstanding examples of the country's natural history. NNLs are designated by the Secretary of the Interior, with the owner's concurrence, as being of national significance, defined as being one of the best examples of a biological community or geological feature within a natural region of the U.S.

National Historic Landmarks Program. The National Historic Landmarks Program, developed in 1982, identifies and designates National Historic Landmarks, and encourages the long range preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the U.S. These regulations set forth the criteria for establishing national significance and the procedures used by the Department of the Interior for conducting the National Historic Landmarks Program.

National Historic Preservation Act (NHPA). The NHPA was passed in 1966 and set the foundation for much of the more specific legislation that guides cultural resource protection and management in local jurisdictions such as the County of San Diego. The Act established an Advisory Council on Historic Preservation to help implement and monitor it. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council a reasonable opportunity to comment on such undertakings. The goal of the section 106 process is to identify historic and prehistoric properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic or prehistoric properties.

National Register of Historic Places (NRHP). Developed in 1981, the NRHP is an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment. Listing of private property on the NRHP does not prohibit under federal law or regulation any actions which may otherwise be taken by the property owner with respect to the property.

Native American Graves Protection and Repatriation Act (NAGPRA). Enacted in 1990, NAGPRA conveys to American Indians of demonstrated lineal decent, the human remains and funerary or religious items that are held by federal agencies and federally supported museums, or that have been recovered from federal lands. It also makes the sale or purchase of American Indian remains illegal, whether or not they derive from federal or Indian lands.

The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. The purpose of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation of 1983 is to: 1) to organize the information gathered about preservation activities; 2) to describe results to be achieved by federal agencies, states, and others when planning for the identification, evaluation, registration and treatment of historic properties; and 3) to integrate the diverse efforts of many entities performing historic preservation into a systematic effort to preserve the nation's culture heritage.

State

State Historical Landmarks Program. The State Historical Landmarks Program places an emphasis on well-known places and events in California history. The goals of the program include the preservation and maintenance of registered landmarks, most of which include missions, early settlements, battles, and gold rush sites.

State Points of Historical Interest Program. The State Points of Historical Interest Program was established in the effort to accommodate local historic properties not able to meet the restrictive criteria of the State Historical Landmarks Program. The Points of Historical Interest Program requires the participation of local governmental officials, such as the chairperson of the Board of Supervisors, in the approval process.

California Register of Historical Resources (CRHR). The CRHR is an authoritative guide for use by state and local agencies, private groups, and citizens to identify the state's historical resources. A historical resource can include any object, building, structure, site, area, or place that is determined to be historically or archaeologically significant. The CRHR also identifies historical resources for state and local planning purposes, and determines eligibility for state historic preservation grant funding.

California Native American Graves Protection and Repatriation Act (Cal NAGPRA). The Cal NAGPRA 2001 conveys to American Indians of demonstrated lineal descent, the human remains and funerary items that are held by state agencies and museums.

California Public Resources Code (PRC) 5079–5079.65 – California Heritage Fund. PRC sections 5079–5079.65 outline the appropriate uses of the California Heritage Fund. The fund shall be available, upon appropriation by the state Legislature, to implement laws providing for historical resource preservation, including, but not limited to, section 5028 and Executive Order W-26-92, under criteria developed by the Office of Historic Preservation and adopted by the State Historical Resources Commission.

California PRC 5097–5097.6 – Archaeological, Paleontological and Historical Sites. PRC sections 5097–5097.6 outline the requirements for cultural resource analysis prior to the commencement of any construction project on state lands. This section provides that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California Native American Heritage Commission (NAHC) whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

California PRC 5097.9–5097.991 – Native American Heritage. PRC sections 5097.9–5097.991 provide that no public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1,1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the U.S. Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require it. In addition, this section details the composition and responsibilities of the NAHC. The NAHC strives for the preservation and protection of Native American human remains, associated grave goods, and cultural resources. The NAHC has developed a strategic plan to assist the public, development community, local and federal agencies, educational institutions and California Native Americans to better understand problems relating to the protection and preservation of cultural resources and to serve as a tool to resolve these problems and create an awareness among lead agencies and developers of the importance of working with Native Americans. PRC sections 5097.91 and 5097.98 were amended by State Assembly Bill 2641 in 2006. This bill authorizes the NAHC to bring an action to prevent damage to Native American

burial grounds or places of worship and establishes more specific procedures to be implemented in the event that Native American remains are discovered.

California Government Code (GC) Section 25373. GC section 25373 gives authority to local governments to acquire property for the preservation or development of a historical landmark. In addition, local governments may provide special conditions or regulations for the protection, enhancement, perpetuation, or use of places, sites, buildings, structures, works of art and other objects having a special character or special historical or aesthetic interest or value.

California GC Section 27288.2. GC section 27288.2 requires the County Recorder to record a certified resolution establishing a historical resources designation issued by the State Historical Resources Commission or a local agency. For previously designated properties, the county may record the certified resolution establishing the historical resources designation upon submission.

California GC Sections 50280–50290 – Mills Act. The Mills Act provides for reduced property taxes on eligible historic properties in return for the property owner's agreement to maintain and preserve the historic property. Preservation of properties is to be in accordance with the standards and guidelines set forth by the Secretary of the Interior. In order to be designated, a building must meet qualifying criteria such as significant architecture, association with a historically significant event or person, or location in a historic district.

California Health and Safety Code (HSC) Sections 18950-18961 – State Historic Building Code. HSC sections 18950 through 18961 provide alternative building regulations and building standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of buildings or structures designated as historic buildings. Such alternative building standards and building regulations are intended to facilitate the restoration or change of occupancy so as to preserve their original or restored architectural elements and features, to encourage energy conservation and a cost-effective approach to preservation, and to provide for the safety of the building occupants.

California HSC 7050.5 - Human Remains. HSC section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains. If the coroner determines the remains to be those of a Native American, or has reason to believe that they are those of a Native American, the coroner shall contact by telephone within 24 hours the Native American Heritage Commission. In addition, any person who mutilates or disinters, wantonly disturbs, or willfully removes any human

remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor.

California Penal Code Section 622 – Destruction of Historical Properties. Penal Code section 622 provides that any person, not the owner thereof, who willingly destroys or injures objects of archaeological or historical value, whether on public or private land, is guilty of a misdemeanor.

Senate Bill (SB) 18 – Traditional Tribal Cultural Places. SB 18, enacted in 2004, amended various provisions of the California Government Code to require local governments to consult with Native American groups at the earliest point in the local government land use planning process. The consultation intends to establish a meaningful dialogue regarding potential means to preserve Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. It allows for tribes to hold conservation easements and for tribal cultural places to be included in open space planning.

5.10.5.3 Methodology

ASM's Associate Architectural Historian, Jennifer Krintz, M.H.P., conducted a site visit to the Convair Lagoon Alternative area and photographed the subject resources on April 6, 2011. In addition, Ms. Krintz conducted archival research at the San Diego Public Library in the California Room on the same day. Newspaper and vertical files as well as books were obtained from the California Room. A records search was requested on March 30, 2011, from the South Coastal Information Center (SCIC). Results from the SCIC records search included 22 historic resources found within a 0.5-mile radius of the project area. Sanborn maps, historic aerials and photographs were found online and reviewed. Information from a previous environmental impact report (EIR) on 2701 N. Harbor Drive (prepared by URS) was also used in the research of the Architectural Resources Evaluation and Assessment of Effects report.

5.10.5.4 Thresholds of Significance

Threshold 5.10.5.1: Historical Resources. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact to a historical resource if it would result in a substantial adverse change in the significance of an historical resource as defined in CEQA Guidelines section 15064.5.

Pursuant to CEQA Guidelines section 15064.5, a "historical resource" is one that:

1. Is listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code, § 5024.1, Title 14 CCR, section 4850 et seq.).

2. Is included in a local register of historical resources, or is identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code.
3. Is an object, building, structure, site, area, place, record or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

Threshold 5.10.5.2: Archaeological Resources. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a potentially significant impact if it would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5.

Threshold 5.10.5.3: Paleontological Resources. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would directly or indirectly destroy a unique paleontological resource or unique geologic feature.

Threshold 5.10.5.4: Human Remains. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would disturb any human remains, Native American or otherwise, including those interred outside of formal cemeteries.

5.10.5.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.5.1: Historical Resources. As part of the Convair Lagoon Alternative, the concrete seaplane ramp and pier located on the site would be demolished. Both the seaplane ramp and the pier were constructed circa 1957. The following discussion provides an evaluation of the seaplane ramp and pier for eligibility of listing in the NRHP, the CRHR, the local register for the City of San Diego Historical Sites, and of qualifying as a historic resource under CEQA.

The results from the SCIC records search included 22 historic resources found within a 0.5-mile radius of the project area. However, these 22 historic resources are properties that are not associated with the Convair complex or Convair Lagoon Alternative site structures. Additionally, as a result of the recent demolition of the adjacent Teledyne Ryan complex, most of these 22 historic resources have been demolished. Therefore, an evaluation of these resources is not included in this analysis because they are not relevant to the Convair Lagoon Alternative or the Convair complex. Refer to Appendix A, Initial Study, of this EIR for impacts related to historical resources from dredging and dewatering activities at the Shipyard Sediment Site.

National Register of Historic Places. National Register Bulletin 15 outlines the criteria to be used when determining a historic resource's eligibility for listing in the NRHP. The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess *integrity* and meets one or more of the following four criteria:

Criterion A: Criterion A historical resources are associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: Criterion B historical resources are associated with the lives of persons significant in our past.

Criterion C: Criterion C historical resources embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: Criterion D historical resources have yielded, or may likely yield, information important in prehistory or history.

NRHP Criterion A. Of all the facilities located on the Convair Lagoon Alternative site, the seaplane ramp and the pier have the strongest potential for historic significance due to their association with the local aircraft industry in San Diego. The aircraft industry in San Diego is significant for its contribution to several historic milestones in the aeronautics industry; including the construction of the *Spirit of St. Louis* and the construction of the first spacecraft that orbited the earth. The existing pier and seaplane ramp were previously part of a larger aircraft manufacturing complex that included several buildings, hangars, runways and testing sites for the aviation company Convair. However, most of this complex has been redeveloped by the San Diego International Airport and has lost its integrity as a larger historic district.

The seaplane ramp was previously part of a large structure that held a runway and other associated aircraft buildings used by Convair seaplanes. Historically, the seaplane ramp was used as a transport connector between the San Diego Bay and the aircraft road surface/runway on land. Currently, the visual relationship between the components of the manufacturing complex has been compromised by the on-site chain link fence and the intrusion of the rental car parking lot to the west. Additionally, the seaplane ramp was originally equipped with a narrow ancillary structure used for watercraft and seaplanes. This ancillary structure was attached to the sea plane ramp via a narrow driveway that jutted out into the bay. This ancillary feature no longer exists. Therefore, the seaplane ramp and pier were once part of a larger bay shore resource that no longer retains integrity to convey its association to the overall Convair complex.

The pier and seaplane ramp structures were constructed in 1957 after Convair's period of peak performance in San Diego, which was before and during World War II (circa 1945). Both the seaplane ramp and pier no longer retain their original setting, feeling or association with the larger aircraft manufacturing complex. The setting, feeling and association aspects of integrity are the most significant for these types of resources as part of a larger complex. Additionally, the Convair complex has been altered to such a degree that no potential for a historic district exists. Therefore, the seaplane ramp and pier are not potential contributors to an eligible historic district for the Convair manufacturing company. Although both the seaplane ramp and the pier are associated with a historically significant aircraft company that played an important role in the local aircraft industry, neither of these resources individually embodies those events nor are they eligible as contributors to a larger district for the Convair complex. Therefore, both the seaplane ramp and pier are not eligible for the NRHP under Criterion A.

NRHP Criterion B. According to the Convair Lagoon Architectural Resources Evaluation and Assessment of Effects, no information of associations with the lives of significant persons exists for the seaplane ramp or the pier. Therefore, both the seaplane ramp and pier are not eligible for the NRHP under Criterion B.

NRHP Criterion C. Neither the seaplane ramp nor the pier embody distinctive characteristics, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. Therefore, the seaplane ramp and the pier are not eligible for the NRHP under Criterion C.

NRHP Criterion D. The seaplane ramp and the pier have not yielded information important in prehistory or history. Therefore, the seaplane ramp and the pier are not eligible for the NRHP under Criterion D.

California Register of Historical Resources Criteria. The CRHR program encourages public recognition and protection of resources of architectural, historical, archeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA.

In order to be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2. It is associated with the lives of persons important to local, California or national history.

3. It embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.
4. It either has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

The CRHR Criteria parallel the criteria of the NRHP. As discussed above, the seaplane ramp and the pier do not meet any of the NRHP criteria. Therefore, the seaplane ramp and the pier do not meet the four CRHR criteria. The seaplane ramp and pier are not eligible for the CRHR.

City of San Diego Historical Board (SDHB). To be designated as historical by the City of San Diego Historical Resources Board, the site must meet any of the following criteria:

Criterion A: Exemplifies or reflects special elements of the City's, a community's or a neighborhood's historical, archaeological, cultural, social, economic, political, aesthetic, engineering, landscaping or architectural development.

Criterion B: Is identified with persons or events significant in local, state or national history.

Criterion C: Embodies distinctive characteristics of a style, type, period or method of construction or is a valuable example of the use of indigenous materials or craftsmanship.

Criterion D: Is representative of the notable work of a master builder, designer, architect, engineer, landscape architect, interior designer, artist or craftsman.

Criterion E: Is listed or has been determined eligible by the National Park Service for listing on the National Register of Historic Places or is listed or has been determined eligible by the State Historical Preservation Office for listing on the State Register of Historical Resources.

Criterion F: Is a finite group of resources related to one another in a clearly distinguishable way or is a geographically definable area or neighborhood containing improvements which have a special character, historical interest or aesthetic value or which represent one or more architectural periods or styles in the history and development of the City.

SDHB Criterion A. Both the seaplane ramp and the pier have the strongest potential for historic significance due to their association with the aircraft industry in San Diego. The aircraft industry in San Diego is significant for its contribution to several historic milestones in the aeronautics industry such as the construction of the *Spirit of St. Louis*, and the construction of the first spacecraft that orbited the earth. Both the pier and the seaplane ramp were part of a larger aircraft manufacturing complex that included several buildings, hangars, runways and testing sites for Convair. However, most of this complex has been redeveloped

by the San Diego International Airport and has therefore lost its integrity as a larger historic district. The seaplane ramp was part of a larger structure that held a runway and other associated aircraft buildings and was used as a transport connector between the San Diego Bay and the aircraft road surface/runway on land. Today the visual relationship between the components of the complex has been compromised by the on-site chain link fence and the intrusion of the rental car parking lot to the west. Further, the seaplane ramp was originally equipped with a narrow ancillary structure that jutted out into the bay and was used for watercraft and seaplanes. This ancillary structure no longer exists. Therefore, the seaplane ramp and pier were once part of a larger bay shore resource that no longer retains integrity to convey its association with the overall Convair complex.

Both the seaplane ramp and pier no longer retain their original setting, feeling or association with the larger aircraft manufacturing complex. These aspects of integrity are the most significant for these types of resources as part of a larger complex. Additionally, the Convair complex has been altered to such a degree that no potential for a historic district exists. Therefore, the seaplane ramp and pier are not potential contributors to an eligible historic district related to the Convair manufacturing company. Although both resources are associated with a historically significant aircraft company that played an important role in the local aircraft industry, neither of those structures individually embody those events. Therefore, neither the seaplane ramp nor the pier, as contributors to a historic district or individually, is eligible for the local register of the City of San Diego under Criterion A.

SDHB Criterion B. According to the *Convair Lagoon Architectural Resources Evaluation and Assessment of Effects*, no information of associations with the lives of significant persons exists for the seaplane ramp or the pier. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion B.

SDHB Criterion C. Neither the seaplane ramp nor the pier embody distinctive characteristics of an architectural style, type, or method of construction or are a valuable example of the use of indigenous materials or craftsmanship. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion C.

SDHB Criterion D. The Convair seaplane ramp and pier were constructed by the aviation company Convair. According to the *Convair Lagoon Architectural Resources Evaluation and Assessment of Effects*, no architect is associated with these structures. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion D.

SDHB Criterion E. As discussed above, neither the seaplane ramp nor the pier are eligible for the NRHP or CRHP. Therefore, neither the seaplane ramp nor pier is eligible for the local register for the City of San Diego under Criterion E.

SDHB Criterion F. The seaplane ramp and the pier were part of a larger bay shore resource complex of buildings associated with the seaplane aircraft manufacturing sector of Convair. However, this larger bay shore resource has been largely redeveloped. The remaining components which include the seaplane ramp and pier do not retain enough integrity in association, setting and feeling to convey their significance as resources to a historic district. Therefore, neither the seaplane ramp nor the pier is eligible for the local register for the City of San Diego under Criterion F.

Neither the seaplane ramp nor the pier are eligible for the NRHP, the CRHR, or the local register for the City of San Diego. Therefore, the seaplane ramp and the pier are not considered historical resources for the purposes of CEQA. Since it would not result in a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5, the Convair Lagoon Alternative would not result in a significant impact to a historical resource.

Threshold 5.10.5.2: Archaeological Resources. PRC section 21083.2 defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As part of the Convair Lagoon Architectural Resource Evaluation and Assessment of Effects (Appendix K), a records search was conducted by SCIC. The SCIC records search included an evaluation of reports listed in the National Archaeological Database. No archeological resources were identified on the project site or with the 0.5 mile search radius. However, natural bay sediments, which could contain archeological resources, underlie the area proposed for the containment barrier. Excavation activities associated with construction of the containment barrier could potentially impact archeological resources. As described in the Initial Study for the Shipyard Sediment Site Project, included as Appendix A to this EIR, in the event that an archaeological resource is found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified archaeologist will evaluate the find. If the archaeologist determines that potentially significant archaeological materials are encountered, the archaeologist will recover, retrieve, and/or remove any archaeological materials. The archaeologist will provide a copy of documentation of all recovered data and materials found on site to the regional information

center of the California Archaeological Inventory for inclusion in the permanent archives and another copy shall accompany any recorded archaeological materials data.

Threshold 5.10.5.3: Paleontological Resources. For the purposes of this EIR, a unique paleontological resource is any fossil or assemblage of fossils, paleontological resource site, or formation that meets any one of the following criteria:

1. Is the best example of its kind locally or regionally?
2. Illustrates a life-based geologic principle (i.e., faunal succession).
3. Provides a critical piece of paleobiological data (illustrates a portion of geologic history or provides evolutionary, paleoclimatic, paleoecological, paleoenvironmental or biochronological data).
4. Encompasses any part of a "type locality" of a fossil or formation.
5. Contains a unique or particularly unusual assemblage of fossils.
6. Occupies a unique position stratigraphically within a formation.
7. Occupies a unique position, proximally, distally or laterally within a formation's extent or distribution.

The Convair Lagoon Alternative site was originally mudflats and open water of the San Diego Bay. Decades of dredging and placement of fill soils have resulted in the surrounding land area. The near-surface soil layers of the Convair Lagoon site consist of imported sand as fill used to cap PCB contaminated sediments and recent bay deposits. Recent bay deposits underlie the sand cap and PCB contaminated sediment. Bay deposit materials typically consist of interlayered dark gray, wet, loose, fine silty sand and silt and soft, sandy clay. Old paralic deposits underlie the bay deposits and typically consist of medium dense sand and stiff clay. Both bay deposits and old paralic deposits have a high potential for paleontological resources to occur (CSD, 2007). Excavation and dredging activities have the potential to impact soil units that may contain paleontological resources. However, as described in the Initial Study for the Shipyard Sediment Site Project and included as Appendix A to this EIR, in the event that an paleontological resource is found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified paleontologist will evaluate the find. If the paleontologist determines that potentially significant paleontological materials are encountered, the paleontologist will recover, retrieve, and/or remove any archaeological or paleontological materials in a method consistent with current laws and regulations.

Threshold 5.10.5.4: Human Remains. Section 15064.5(d) and (e) of the CEQA Guidelines assign special importance to human remains and specify procedures to be used when Native American remains are discovered. These procedures are detailed under PRC section

5097.98, which outlines notification procedures in the event of a discovery of Native American human remains.

The Convair Lagoon Alternative site is located in an area that was originally an open water portion of the San Diego Bay underlain by natural bay sediments. There is a potential for human remains to occur in the natural sediments of the site, which would be disturbed during excavation of materials for the containment structure. However, in the event that human remains were discovered on the site during construction activities, construction activities would be required to comply with the applicable federal, state and local regulations related to human remains. For example, Native American human burials have specific provisions for treatment in Public Resources Code section 5097, as amended by Assembly Bill 2641, which addresses the disposition of Native American burials, protects such remains, and establishes the California Native American Heritage Commission to resolve any related disputes. Additionally, the California Native American Graves Protection and Repatriation Act require repatriation of Native American human remains and funerary items that are held by state agencies and museums. The California Health and Safety Code section 7050.5 has specific provisions for the protection of human burial remains, Native American or otherwise, if they are discovered. California Health and Safety Code section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains. In addition, any person who mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor criminal offense. The Convair Lagoon Alternative would comply with all applicable regulations related to the inadvertent discovery of human remains. Compliance with regulations pertaining to the discovery of human remains would result in a less than significant impact related to this resource. With regard to potential human remains impacts associated with the dredging operations at the Shipyard Sediment site, refer to Appendix A, Initial Study, of this EIR.

Potentially Significant Impacts

No significant impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative. All impacts would be less than significant prior to mitigation.

Mitigation Measures

No significant impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative. Therefore, no mitigation measures are required.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for cultural resources varies depending on the type of cultural resource that could be impacted. The geographic scope for each of the four cultural resources topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.5.1: Historical Resources. For the purpose of this EIR, the geographic scope for the cumulative analysis of historic resources includes the historical aircraft manufacturing complex associated with the Teledyne Ryan and a separate manufacturing complex associated with the Convair company. Past cumulative project redevelopment in the Teledyne Ryan manufacturing complex area has resulted in the demolition of the majority of the buildings and structures from this complex. Additionally, past cumulative project redevelopment in the area surrounding the Convair Lagoon Alternative site has resulted in the demolition of the majority of buildings and structures associated with the Convair complex. The past demolition of these historic resources has resulted in a significant cumulative impact. As discussed above, the Convair Lagoon Alternative Site would result in the demolition of a seaplane ramp and pier. The Convair complex has been altered to such a degree by past cumulative development that no potential for a Convair historic district exists. Therefore, the seaplane ramp and pier are not potential contributors to an eligible historic district related to the Convair manufacturing company and demolition of these structures would not result in a cumulatively considerable contribution to this historical resources impact.

Threshold 5.10.5.2: Archaeological Resources. The geographic scope for the cumulative analysis of archaeological resources encompasses the city of San Diego and lands under the jurisdiction of the San Diego Unified Port District (District) because the native people that lived near San Diego Bay are associated with this geographic area. Specific cumulative projects are identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative. The city of San Diego and lands under the jurisdiction of the District have a high to low potential for archeological resources to occur. The development of cumulative projects, such as the West-Side Ground Transportation Project 5 which would construct a new parking structure, would require excavation activities or other ground disturbance activities which could result in significant impacts to archaeological resources. Therefore, the cumulative impact to archaeological resources due to cumulative development is significant. As discussed above, implementation of the Convair Lagoon Alternative would have no impact on archeological resources because in the event that an archaeological resource is found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified archaeologist will evaluate the find as described in the Initial Study for the project found in Appendix A. Therefore, construction of the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to the cumulative archaeological resources impact.

Threshold 5.10.5.3: Paleontological Resources. The geographic context for the analysis of cumulative impacts to paleontological resources encompasses the paleontological sensitive geologic formations within the city of San Diego and the District. Excavation activities associated with land development within these areas could have significant impacts to paleontological resources. For example, and as listed in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, cumulative projects such as the Thomas Jefferson School of Law project involved, or would involve, ground disturbing construction activities that resulted in the discovery of significant paleontological resources. Therefore, the cumulative impact to paleontological resources caused by excavation activities associated with cumulative development within the regional cumulative impact area is significant. However, the Convair Lagoon Alternative would not result in impacts to paleontological resources because in the event that paleontological resources are found during implementation of this alternative, the contractor will immediately cease all construction at the place of discovery and a qualified paleontologist will evaluate the find as described in the Initial Study for the project found in Appendix A. Therefore the Convair Lagoon Alternative would not result in a cumulatively considerable contribution to the cumulative significant impact.

Threshold 5.10.5.4: Human Remains. The geographic scope for the cumulative analysis of human resources encompasses the city of San Diego and lands under the jurisdiction of the District because the native people that lived near San Diego Bay are associated with this geographic area. Cumulative projects, including those identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, in the region have the potential to impact human remains due to grading, excavation or other ground-disturbing activities. However, all cumulative projects, including the Convair Lagoon Alternative would be required to comply with PRC 5097.98 and California Health and Safety Code 7050.5. Compliance with these regulations would result in a less than significant cumulative human remains impact from cumulative projects. Therefore, the Convair Lagoon Alternative would not result in a significant cumulative human remains impact.

Level of Significance After Mitigation

No significant impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative. Without mitigation, all impacts remain less than significant.

Significant and Unavoidable Adverse Impacts

No significant and unavoidable impacts would occur to cultural resources, archeological resources, paleontological resources or human remains from implementation of the Convair Lagoon Alternative.

Photo 1: View looking west at the east side of the pier.

Photo 2: View looking west at the Convair Seaplane ramp entry.

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FIGURE 5-10

Convair Lagoon Alternative
Convair Seaplane Ramp and Convair Pier

SOURCE: Brown & Winters 2011

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5.10.6 Geology and Soils

This section of the analysis describes the existing geology, soils, and seismic conditions on the Convair Lagoon Alternative Site and analyzes the potential physical environmental effects related to seismic hazards and geologic conditions. Potential effects of soil conditions on air and water quality as a result of construction-related activities are discussed in Section 5.10.3, Air Quality, and Section 5.10.9, Hydrology and Water Quality, respectively. This section is based on the information provided in the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Ninyo and Moore, 2011a), which is included as Appendix L of this EIR.

5.10.6.1 Existing Environmental Setting

The following section describes the regional geologic setting, site geology, and faulting and seismicity issues related to the Convair Lagoon Alternative site.

Regional Geologic Setting

The Convair Lagoon Alternative site is situated in the coastal section of the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California. The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Jurassic-age metavolcanic and metasedimentary rocks, and Cretaceous-age igneous rock of what is known as the southern California batholith. The westernmost portion of the province in San Diego County, which includes the Convair Lagoon site, consists generally of a dissected coastal plain underlain by Upper Cretaceous, Tertiary, and Quaternary-age sediments.

The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones generally trending in northwest/southeast direction. As shown in Figure 5-11, the site, like much of San Diego, is located near the active Rose Canyon fault zone. The Elsinore, San Jacinto, and San Andreas faults are major active fault systems located northeast of the Convair Lagoon site and the Coronado Bank, San Diego Trough, and San Clemente faults are active faults located west of the site. Major tectonic activity associated with these and other faults within this regional tectonic framework consists primarily of right-lateral, strike-slip movement.

Site Geology

The Convair Lagoon site is underlain by fill material and bay deposits. The fill material and bay deposits are underlain by Pleistocene-age old paralic deposits. Fill material on the site includes sand that was placed as part of a contaminated sediment capping operation in the 1990s. Bay deposits consist of interlayered dark gray, wet to saturated, very loose to loose,

silty fine sand and silt, and soft, sandy clay. Old paralic deposits typically consist of medium dense sand and stiff clay.

Faulting and Seismicity

The Convair Lagoon site is located in a seismically active area. The closest known major active fault (i.e., a fault that exhibits evidence of ground displacement within the last 11,000 years) to the site is the Spanish Bight Fault, an element of the Rose Canyon Fault. Both the Spanish Bight Fault and the Rose Canyon Fault are capable of generating a maximum moment magnitude earthquake of 7.2. Figure 5-11 identifies the approximate location of the Convair Lagoon site with respect to the regional active faults.

Ground Shaking. Ground shaking is the earthquake effect that produces the vast majority of damage. Several factors control how ground motion interacts with structures, making the hazard of ground shaking difficult to predict. Earthquakes, or earthquake induced landslides, can cause damage near and far from fault lines. The potential damage to public and private buildings and infrastructure can threaten public safety and result in significant economic loss. Ground shaking is the most common effect of earthquakes that adversely affects people, animals, and constructed improvements. Seismic waves propagating through the earth's crust are responsible for the ground vibrations normally felt during an earthquake. Seismic waves can vibrate in any direction, and at different frequencies, depending on the frequency content of the earthquake rupture mechanism and the path and material through which the waves are propagating. The earthquake rupture mechanism is the distance from the earthquake source, or epicenter, to an affected site.

Table 5-30 provides a list of known active faults that may affect the Convair Lagoon site and the maximum moment magnitude that would occur at the site from a seismic event. The nearest known active fault to the Convair Lagoon is the Spanish Bight Fault, an element of the Rose Canyon Fault. The Spanish Bight Fault intersects the southwestern boundary of the Convair Lagoon site.

Table 5-30: Active Faults near Convair Lagoon

Fault	Approximate Distance miles (km)	Maximum Moment Magnitude (M_{max})
Spanish Bight	0 (0)	7.2
Rose Canyon	0.7 (1.2)	7.2
Coronado Bank	12 (20)	7.6
Newport-Inglewood (Offshore)	33 (53)	7.3
Elsinore (Julian Segment)	42 (67)	7.1
Elsinore (Temecula Segment)	46 (74)	6.8
Earthquake Valley	47 (76)	6.5
Elsinore (Coyote Mountain Segment)	51 (82)	6.8
Palos Verdes	58 (94)	7.3

Table 5-30: Active Faults near Convair Lagoon

Fault	Approximate Distance miles (km)	Maximum Moment Magnitude (M_{max})

Source: Ninyo and Moore, 2011

Fault Rupture. During earthquakes, the ground can rupture at or below the surface. Ground rupture occurs when two lithospheric plates heave past each other, sending waves of motion across the earth. The lithosphere is approximately 75 miles thick and consists of the upper continental and oceanic crusts and the rigid mantle layer that is directly beneath the crust. Earthquakes can cause large vertical and/or horizontal displacement of the ground along the fault. Ground rupture can completely demolish structures by rupturing foundations or by tilting foundation slabs and walls, as well as damage buried and above ground utilities. Drinking water can be lost, and the loss of water lines or water pressure can affect emergency services, including fire fighting ability.

As shown on Figures 5.10.6-2, the western portion of the Convair Lagoon site is located within a California-designated Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) and a San Diego designated fault study zone. The portion of the Rose Canyon fault that intersects the southwestern boundary of the Convair Lagoon site is known as the Spanish Bight Fault strand. The Spanish Bight Fault strand is recognized as active and trends in a north/south direction towards the site through San Diego Bay. Ground surface rupture due to active faulting is possible at the Convair Lagoon site due to the presence of the Spanish Bight Fault at the southwestern boundary of the site. Additionally, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine to medium-grained soils in areas where the groundwater table is generally 50 feet or less below the surface. When these sediments are shaken during an earthquake, a sudden increase in pore water pressure causes the soils to lose strength and behave as a liquid. In general, three types of lateral ground displacement are generated from liquefaction: 1) flow failure, which generally occurs on steeper slopes; 2) lateral spread, which generally occurs on gentle slopes; and 3) ground oscillation, which occurs on relatively flat ground. In addition, surface improvements on liquefiable areas may be prone to settlement and related damage in the event of a large earthquake on a regionally active fault. The primary factors that control the type of failure that is induced by liquefaction (if any) include slope, and the density, continuity, and depth of the liquefiable layer.

Adverse effects of liquefaction include:

1. Loss of bearing strength so that the ground loses its ability to support structures. Structures can be left leaning or they can collapse.
2. Lateral spreading where the ground can slide on a buried liquefied layer. Buildings, roads, pipelines and other structures can be damaged.
3. Sand boils of sand-laden water can be ejected from a buried liquefied layer and erupt at the surface. The surrounding ground often fractures and settles.

4. Ground oscillation so that the surface layer, riding on a buried liquefied layer, is thrown back and forth by the shaking and can be severely deformed. Land containing walkways, roads, highways, and structures can all be shaken, broken, damaged and/or destroyed.
5. Flotation to the surface of light-weight structures that are buried in the ground (e.g., pipelines, sewers, and nearly empty fuel tanks).
6. Settlement when liquefied ground re-consolidates following an earthquake.

Lateral Spreading. Lateral spreading is a shallow, water-saturated landslide deformation often triggered from seismically induced liquefaction. Lateral spread of the ground surface during an earthquake usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spread has generally been observed to take place in the direction of a free-face (e.g., retaining wall, slope, channel) but has also been observed to a lesser extent on ground surfaces with gentle slopes. Other factors such as earthquake magnitude, distance from the causative fault, thickness of the liquefiable layers, and particle sizes of the liquefiable layers also influence the amount of lateral ground displacement.

Landsliding. Landslides can be caused by ground shaking from an earthquake or water from rainfall, septic systems, landscaping, or other origins that infiltrate slopes with unstable material. Boulder-strewn hillsides can pose a boulder-rolling hazard.

Expansive Soils. Certain types of clay soils expand when they are saturated and shrink when dried. These are called expansive soils, and can pose a threat to the integrity of structures built on them without proper engineering. Expansive soils are derived primarily from weathering of feldspar minerals and volcanic ash. Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content.

Corrosive Soils. Caltrans corrosion criteria define corrosive soils as soils with more than 500 parts per million chlorides, more than 0.2 percent sulfates, or a pH less than 5.5.

Compressive Soils. Compressible soils, like expansive soils, result from specific clay minerals or loose granular materials that have the capacity to shrink or compress in response to changes in moisture content or new loads.

Collapsible Soils. Collapsible soils are those that appear to be strong and stable in their natural state, but which rapidly consolidate under wetting, generating large and often unexpected settlements. This can yield disastrous consequences for structures unwittingly

built on such deposits. Such soils are often termed "collapsible" and the process of their collapsing is called "hydro-collapse" (Swan, 2011).

5.10.6.2 Regulatory Setting

Federal

U.S. Geological Survey (USGS) Landslide Hazard Program. In fulfillment of the requirements of Public Law 106-113, the USGS created the Landslide Hazard Program in the mid-1970s. According to USGS, the primary objective of the National Landslide Hazards Program (LHP) is to reduce long-term losses from landslide hazards by improving our understanding of the causes of ground failure and suggesting mitigation strategies. The Federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a state and local responsibility. In San Diego County, the Unified Disaster Council (UDC) is the governing body of the Unified San Diego County Emergency Services Organization. The primary purpose of the UDC and the Emergency Services Organization is to provide for the coordination of plans and programs designed for the protection of life and property in the County of San Diego.

State

Alquist-Priolo (AP) Earthquake Fault Zoning Act. The California Legislature passed this law in 1972 to help identify areas subject to severe ground shaking. This state law requires that proposed developments incorporating tracts of four or more dwelling units investigate the potential for ground rupture within AP zones. These zones serve as an official notification of the probability of ground rupture during future earthquakes. Where such zones are designated, no building may be constructed on the line of the fault, and before any construction is allowed, a geologic study must be conducted to determine the locations of all active fault lines in the zone.

California Building Code. The CBC provides a minimum standard for building design. Chapter 16 of the 2010 CBC contains specific requirements for seismic safety. Chapter 18 of the 2010 CBC regulates excavation, foundations, and retaining walls. Chapter 33 of the 2010 CBC contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Appendix sections J109 and J110 of the 2010 CBC regulate grading activities, including drainage and erosion control. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in California Occupational Safety and Health Administration (Cal/OSHA) regulations (Title 8 of the California Code of Regulations [CCR]) and in Appendix sections J106 and J107 of the 2010 CBC.

Seismic Hazards Mapping Act. Part of the California Public Resources Code, this Act was passed by the state Legislature in 1990 to address non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. Guidelines for Evaluation and Mitigating Seismic Hazards in California (Special Publication 117) were adopted by the state Mining and Geology Board on March 13, 1997 (revised and re-adopted on September 11, 2008 as Special Publication 117a) in accordance with the Seismic Hazards Mapping Act of 1990. The publication contains the guidelines for evaluating seismic hazards other than surface fault rupture (landslides and liquefaction), and for recommending mitigation measures to minimize impacts. A lead agency may determine when the investigation required by the guidelines and the Seismic Hazards Mapping Act would occur for a project.

5.10.6.3 Methodology

Ninyo & Moore evaluated the geologic and soil conditions for the Convair Lagoon Alternative site in April 2011. The results of this evaluation are provided in the report *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis*, included as Appendix L of this EIR. The Ninyo and Moore geology and soils evaluation of the Convair Lagoon Site was based on a geologic reconnaissance, reviews of published and unpublished geologic and geotechnical reports, aerial photographs, in-house data, and an assessment of the potential geologic hazards. The methodology used in the evaluation estimated the potential for impacts to the site to occur from geologic or soils conditions on or in close proximity to the site, and discusses measures that might be considered during project design to reduce or mitigate the potential impacts with respect to the development of the Convair Lagoon Alternative.

5.10.6.4 Thresholds of Significance

Threshold 5.10.6.1: Exposure to Seismic-Related Hazards. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would expose people or structures to potential substantial adverse impacts, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent AP Earthquake Fault Zoning Map issued by the state Geologist or based on other substantial evidence of a known fault; strong seismic ground shaking; or seismic-related ground failure, including liquefaction or landslides.

Fault Rupture. Specifically, the Convair Lagoon Alternative would result in a significant impact from fault rupture if any building or structure to be used for human occupancy would occur over or within 50 feet of the trace of an AP Fault. A significant impact could also occur if a confinement structure was compromised as a result of fault rupture resulting in leakage of contaminated sediments into San Diego Bay.

Seismic Ground Shaking. The Convair Lagoon Alternative would result in a significant impact from ground shaking if any building or structure to be used for human occupancy is located within Seismic Design Category E and F of the CBC and does not conform to the CBC. A significant impact could also occur if a confinement structure was compromised as a result of seismic ground shaking resulting in leakage of contaminated sediments into San Diego Bay.

Ground Failure. The Convair Lagoon Alternative would have the potential to expose people or structures to substantial adverse effects from liquefaction if:

a. Areas proposed for development contain potentially liquefiable soils;
b. The potentially liquefiable soils are saturated or have the potential to become saturated; or
c. In-situ soil densities are not sufficiently high to preclude liquefaction.

Landslides. The Convair Lagoon Alternative would result in a significant impact from landslide risk if:

a. It would expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving landslides;
b. It is located on a geologic unit or soil that is unstable, or would become unstable as a result of the proposed project, potentially resulting in an on- or off-site landslide; or
c. It lies directly below or on a known area subject to rockfall which would result in collapse of structures.

Threshold 5.10.6.2: Soil Erosion and Topsoil Loss. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in substantial soil erosion or loss of topsoil from construction or operational activities.

Threshold 5.10.6.3: Soil Stability. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a potentially significant impact if it would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the land use designation, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Threshold 5.10.6.4: Expansive Soils. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would be located on

expansive soil, as defined in section 1802A.3.2 of the CBC, creating substantial risks to life or property.

Threshold 5.10.6.5: Alternative Waste Water Disposal Systems. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

5.10.6.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.6.2: Soil Erosion and Topsoil Loss. Topsoil is the uppermost layer of soil, usually comprised of the top six to eight inches. It has the highest concentration of organic matter and microorganisms, and is where most biological soil activity occurs. Plants generally concentrate their roots in, and obtain most of their nutrients from, this layer of soil. Topsoil erosion is of concern when the topsoil layer is blown or washed away. This creates an environment that doesn't support the plants and animals otherwise present in topsoil and disrupts the food chain and local ecosystem. It can also increase the rate of pollutants that become delivered to watersheds. Erosion can occur as a result of, and can be accelerated by, construction and operational activities associated with the Convair Lagoon Alternative. The following discussion describes potential erosion impacts from construction and operation of the Convair Lagoon Alternative. Refer to Section 4.2, Water Quality, of this EIR for impacts related to soil erosion and topsoil loss from dredging and dewatering activities at the Shipyard Sediment Site.

Construction Activities. The demolition, excavation, soil importation and soil stockpiling operations associated with construction of the Convair Lagoon Alternative would have the potential to expose soils to wind and surface water runoff related erosion. However, all construction activities occurring under the Convair Lagoon Alternative would be required to comply with CBC, which would ensure implementation of appropriate measures during grading and construction activities to reduce soil erosion. Additionally, construction activities would be required to comply with the General Construction Permit, which requires stormwater pollution prevention plans (SWPPPs) to be prepared and implemented, and best management practices (BMPs) to be identified for construction sites greater than one acre. Implementation of appropriate BMPs would protect water quality by controlling storm water runoff and erosion and ensuring that the quality of storm water flows meets the applicable requirements of the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). Additionally, because the Convair Lagoon Alternative site is under the jurisdiction of the San Diego Unified Port District (District), it must comply with the District's Jurisdictional Standard Urban Stromwater Mitigation Planning Document (JURMP). One requirement of the JURMP is to prepare and implement an Urban Stormwater Mitigation Plan (USMP). In general, the USMP conveys the process used to identify

pollutants of concern, conditions of concern, and BMPs to control/reduce runoff volume and its associated pollutants. BMP maintenance requirements are also addressed to ensure consistent pollution prevention performance. Compliance with these regulations during construction activities would result in a less than significant impact to erosion and topsoil loss from implementation of the Convair Lagoon Alternative.

Operational Activities. Currently, Convair Lagoon consists of submerged land. The site is underlain by fill material and bay deposits. The fill material and bay deposits are underlain by Pleistocene-age old paralic deposits. The fill material on the site was placed as part of a capping operation in the 1990s. According to the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Ninyo and Moore, 2011), the existing soil conditions are classified as soft ground or loose soil, which may have the potential for increased erosion. However, as part of the Convair Lagoon Alternative, the existing soils on site would be covered with dredged material from the Shipyard Sediment site and capped with 9 inches of clean, compacted, imported fill material and a three-inch asphalt layer above the imported fill material. The capping fill material and asphalt layer associated with implementation of the Convair Lagoon Alternative would reduce the potential for soil erosion to occur on the site to a level below significance. Therefore, the Convair Lagoon Alternative would not result in substantial soil erosion or loss of topsoil from operational activities.

Threshold 5.10.6.4: Expansive Soils. Existing soils on the Convair Lagoon site have a moderate to high potential for expansion. As part of the Convair Lagoon Alternative, dredged and imported fill materials would be placed in the lagoon to raise the site grade. Based on the dredge source (contaminated sediment from the San Diego Bay), dredged materials that would be placed in the Convair Lagoon site as fill would likely be granular. Sand capping import materials would also likely be granular. Granular materials have low potential for expansion. Implementation of the Convair Lagoon Alternative would result in the existing soils on the site being buried under dredged fill, sand and asphalt, which have low potential for expansion. The addition of dredged fill and the sand cap would mitigate the moderate to high potential for existing soils to expand because soils would remain saturated and would be located at relatively deep depths. Therefore, implementation of the Convair Lagoon Alternative would result in less than significant impacts related to expansive soils.

Threshold 5.10.6.5: Wastewater. The Convair Lagoon Alternative would not construct any residential, commercial, industrial or institutional development that would require wastewater treatment. Upon completion of construction, the site would consist of an undeveloped, above-ground parcel of land with no structures or wastewater infrastructure. The Convair Lagoon Alternative would not create any wastewater treatment demand and would not involve the use of septic tanks or other alternative wastewater disposal systems. Therefore, no impact would occur.

Potentially Significant Impacts

Threshold 5.10.6.1: Exposure to Seismic-Related Hazards. The various types of geologic hazards that could occur from seismic-related events are described in detail below.

Fault Rupture. During earthquakes, the ground can rupture at or below the surface. Ground rupture occurs when two lithosphere plates heave past each other, sending waves of motion across the earth. The Spanish Bight Fault intersects the southwestern boundary of the Convair Lagoon alternative site. As a result, the western portion of the site is within both a California-designated Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) and a San Diego-designated fault zone. Ground surface rupture due to active faulting is possible on the Convair Lagoon Alternative site due to the presence of the Spanish Bight Fault strand. Lurching or cracking of the ground surface as a result of nearby seismic events is also possible. Fault rupture could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Seismic Ground Shaking. Ground shaking is the most common effect of earthquakes that adversely affects people and constructed improvements. The CBC defines different regions of the U.S. and ranks them according to their seismic hazard potential. All of San Diego County is located within Seismic Design Categories E and F, which have the highest seismic potential.

The closest known major active fault to the Convair Lagoon Alternative site is the Rose Canyon Fault. Specifically, the Spanish Bight Fault, an element of the Rose Canyon Fault, intersects the southwestern boundary of the Convair Lagoon Alternative site. Due to the presence of this fault, the Convair Lagoon site has a high potential for strong ground motions due to earthquakes on nearby active faults. Table 5-30 provides a list of known active faults that may affect the Convair Lagoon site and the maximum moment magnitude that would occur at the site from a seismic event. The site has a high potential for strong ground motions due to earthquakes on adjacent and nearby active faults. Seismic ground shaking could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine to medium-grained soils in areas where the groundwater table is generally 50 feet or less below the surface. When these sediments are shaken during an earthquake, a sudden increase in pore water pressure can cause the soils to lose strength and behave as a liquid. Based on the relatively loose fill material and bay deposits underlying the Convair Lagoon site, the presence of shallow groundwater, and knowledge from previous evaluations of liquefaction near the Convair Lagoon Alternative site; soils underlying the site are subject to liquefaction or settlement during a nearby seismic event on a nearby fault. A liquefaction event could affect the

structural integrity of the proposed containment barrier, storm drains and asphalt pavement because of the potential for seismic ground shaking described above. This is a significant impact.

Landslides. Landslides can be caused by ground shaking from an earthquake or water from rainfall, septic systems, landscaping, or other origins that infiltrate slopes with unstable material. Boulder-strewn hillsides can pose a boulder-rolling hazard from ground shaking, blasting or a gradual loosening of their contact with the surface. No landslides or related features underlie or are adjacent to the Convair Lagoon site. Therefore, the potential for landslides to occur is considered low and landslide impacts are less than significant.

Threshold 5.10.6.3: Soil Stability. Soil stability risks that may result in geologic hazards are discussed individually below.

Landslides. According to the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Ninyo and Moore, 2011), no landslides or related features underlie or are adjacent to the Convair Lagoon site and the potential for landslides to occur is low. Therefore, the Convair Lagoon Alternative would not be located on a geologic unit that would become unstable from landslides and impacts would be less than significant.

Lateral Spreading. Lateral spreading is a shallow, water-saturated landslide deformation often triggered from seismically induced liquefaction. Based on the proposed topography of the site upon completion, and the presence of potentially liquefiable layers in the underlying soil materials, the Convair Lagoon Alternative is considered to be potentially susceptible to seismically-induced lateral spread. Lateral spreading could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Hydro-Collapse. Groundwater on the Convair Lagoon Alternative site is approximately three feet above mean lower low water (MLLW), with fluctuations in groundwater occurring due to tidal variations, ground surface topography, subsurface geologic structure, rainfall, irrigation and other factors. Existing site soils within and overlying the zone of fluctuating groundwater within the Convair Lagoon Alternative site may be subject to hydro-collapse. Upon implementation of the Convair Lagoon Alternative, fill materials that would be placed within the zone of fluctuating groundwater may be subject to hydro-collapse. Hydro-collapse could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Compressible Soils. Compressible soils, like expansive soils, result from specific clay minerals or loose granular materials that have the capacity to shrink or compress in response to changes in moisture content or new loads. The existing fill and bay deposits underlying the site consist of silty sand, silt, and sandy clay are considered highly compressible. Compressible soils may lead to settlement of the site and could affect the structural integrity of the proposed containment barrier, storm drains and asphalt pavement. This is a significant impact.

Corrosive Soils. Caltrans corrosion (2003) criteria define corrosive soils as soils with more than 500 parts per million chlorides, more than 0.2 percent sulfates, or a pH less than 5.5. Due to the proximity of the marine environment to the Convair Lagoon site and the variability of the on-site soils, site soils are considered highly corrosive. The presence of corrosive soils and marine environment could affect the structural integrity of the proposed storm drain pipe. This is a significant impact.

Mitigation Measures

To mitigate the significant impacts related to fault rupture, ground shaking, liquefaction, lateral spreading, hydro-collapse, compressible soils and corrosive soils the following mitigation measure would be required, as recommended by Ninyo and Moore, soil engineering experts, in the *Geology and Soils Evaluation for the Convair Lagoon Shipyard Sediment Alternative Analysis* (Appendix L of this EIR):

Mitigation Measure 5.10.6.1: **Detailed Site-specific Geotechnical Investigation.** Prior to construction of the Convair Lagoon Alternative, a detailed site-specific geotechnical investigation will be conducted to determine specific geologic recommendations for the development of the containment barrier and storm drains. Areas of hydro-collapse, soft ground, expansive soils, compressible soils, liquefaction, shallow groundwater, and corrosive soils will be identified as part of the geotechnical investigation. The investigation will specifically address the proposed containment barrier, storm drains, and asphalt improvement stability in these identified geologic hazard areas. The geotechnical investigation will comply with the specifications provided in the Naval Facilities Engineering Command (NAVFAC), DM-7.2, Foundations and Earth Structures, dated September, as well as the City of San Diego Building Division plans and the City of San Diego Engineering Department local grading ordinances. Recommendations made in conjunction with the geotechnical investigations

will be implemented during construction, including (as appropriate) but not necessarily limited to the following actions:

1. Over-excavate unsuitable materials associated with the confinement structure and replace them with imported engineered fill.
2. Confine unstable soils to deeper fill areas of the site.
3. Perform densification of soils in the area beneath the proposed containment structure through geotechnical engineering methods such as stone columns, compaction grouting, or deep dynamic compaction.
4. Select an engineering foundation design to accommodate the expected effects of liquefaction. Examples of types of foundation design that might be appropriate given the soil conditions include gravel bedding for the storm drain pipes and a pipe bell with flexibility to accommodate differential settlement.
5. Consider potential corrosion issues related to storm drain pipe degradation in the design of this improvement where it would contact corrosive soils or be subject to other corrosive forces.
6. Establish and implement a long-term monitoring and repair program to monitor the integrity of the asphalt, containment barrier and storm drains. Key features of the program include determination of the periodic review, the type of review, identification of potential problems that may occur in the future, and the methods that would be used to rectify any problems discovered.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for geology and soils varies depending on the type of geological resource that could be impacted. The geographic scope for each of the five geology and soil topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.6.1: Exposure to Seismic Related Hazards. The geographic context for the analysis of impacts resulting from seismic ground shaking is generally site specific, rather than cumulative in nature, because each development site has unique geologic considerations that would be subject to uniform site development and construction standards. In this way,

potential cumulative impacts resulting from seismic and soil conditions would be minimized on a site-by-site basis to the extent that modern construction methods and code requirements provide. The structural design for all of the cumulative projects identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would be required to comply with all applicable public health, safety, and building design codes and regulations to reduce seismic and geologic hazards to an acceptable level. Cumulative project compliance with applicable regulations, such as the CBC, AP Earthquake Fault Zoning Act and Special Publication 117, would ensure that a significant cumulative impact would not occur. In addition, the implementation of Mitigation Measure 5.10.6.1 above would reduce the direct impacts of the Convair Lagoon Alternative to less than significant. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to seismic related hazards.

Threshold 5.10.6.2: Erosion and Topsoil Loss. The geographic scope of cumulative impact analysis for erosion and topsoil loss is the Lindbergh Hydrologic Subarea within the San Diego Mesa Hydrologic Area within the Pueblo San Diego Hydrologic Unit, the watershed in which the Convair Lagoon Alternative site is located. Cumulative projects located in this watershed would involve construction activities that could result in increased wind and water erosion from exposed soils. Cumulative development could also increase impermeable surfaces, which could alter the natural drainage of a site and result in excess siltation. However, cumulative projects would be subject to state and local runoff and erosion prevention requirements, including the applicable provisions of the General Construction Permit, BMPs, NPDES, JURMP, USMP and grading ordinances. These requirements are implemented as conditions of approval for development projects and are subject to continuing enforcement. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to runoff and erosion.

Threshold 5.10.6.3: Soil Instability. The geographic scope of the cumulative impact analysis for soil instability is limited to the immediate area of the geologic constraint and is generally site specific. When considering the impacts in a larger geographic context, CEQA requires a proposed project to undergo an analysis of the geologic and soil conditions applicable to the development site in question. As required by CEQA, measures would be implemented to mitigate potential impacts associated with unstable soils prior to implementation of a cumulative project. Typical measures to treat unstable soils involve removal and replacement with properly compacted fill, compaction grouting, or deep dynamic compaction. Additionally, cumulative projects would be required to comply with the CBC, which restricts and sets standards for development in areas subject to soil and slope instability. Due to the implementation of mitigation measure 5.10.6.1, CEQA requirements and CBC restrictions, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to soil instability, liquefaction and subsidence.

Threshold 5.10.6.3: Expansive Soils. The geographic context for the analysis of impacts related to expansive soils is limited to the immediate area of the geologic constraint and is generally site specific. When considering the impacts in a larger geographic context, CEQA requires a proposed project to undergo analysis of the soil conditions applicable to the development site in question. As required by CEQA, measures would be implemented to mitigate potential impacts associated with expansive soils prior to implementation of a cumulative project. Typical measures to mitigate expansive soils involve removal, proper fill selection, and compaction. Additionally, cumulative projects would be required to comply with the CBC, which restricts and sets standards for development in areas subject to expansive soils. Due to CEQA requirements and CBC restrictions, the Convair Lagoon Alternative would result in less than significant cumulative impact related to expansive soils.

Threshold 5.10.6.3: Waste Water Disposal Systems. The geographic context for the analysis of impacts related to wastewater disposal systems is limited to the immediate area of the geologic constraint and is generally site specific. The Convair Lagoon Alternative is located in a highly developed, urban area that is served by municipal wastewater service systems. It is highly unlikely that the construction of any cumulative project in this area would require septic tanks or alternative waste water disposal systems. In the event a cumulative project would require a septic tank or alternative waste water system, jurisdictions have permit requirements pertaining to the design of the system and soil permeability characteristics for the construction and operation of these systems with the purpose of protecting public health and safety. Compliance with these permit requirements would reduce any project impacts to a level below significance. Because the Convair Lagoon Alternative would not cause or contribute to any impact on wastewater disposal systems, the project will have no cumulative impact related to wastewater disposal systems.

Level of Significance After Mitigation

With implementation of mitigation measure 5.10.6.1, all significant impacts would be reduced to a level below significance.

Significant and Unavoidable Adverse Impacts

No significant and unavoidable impacts would occur to geologic resources from implementation of the Convair Lagoon Alternative.

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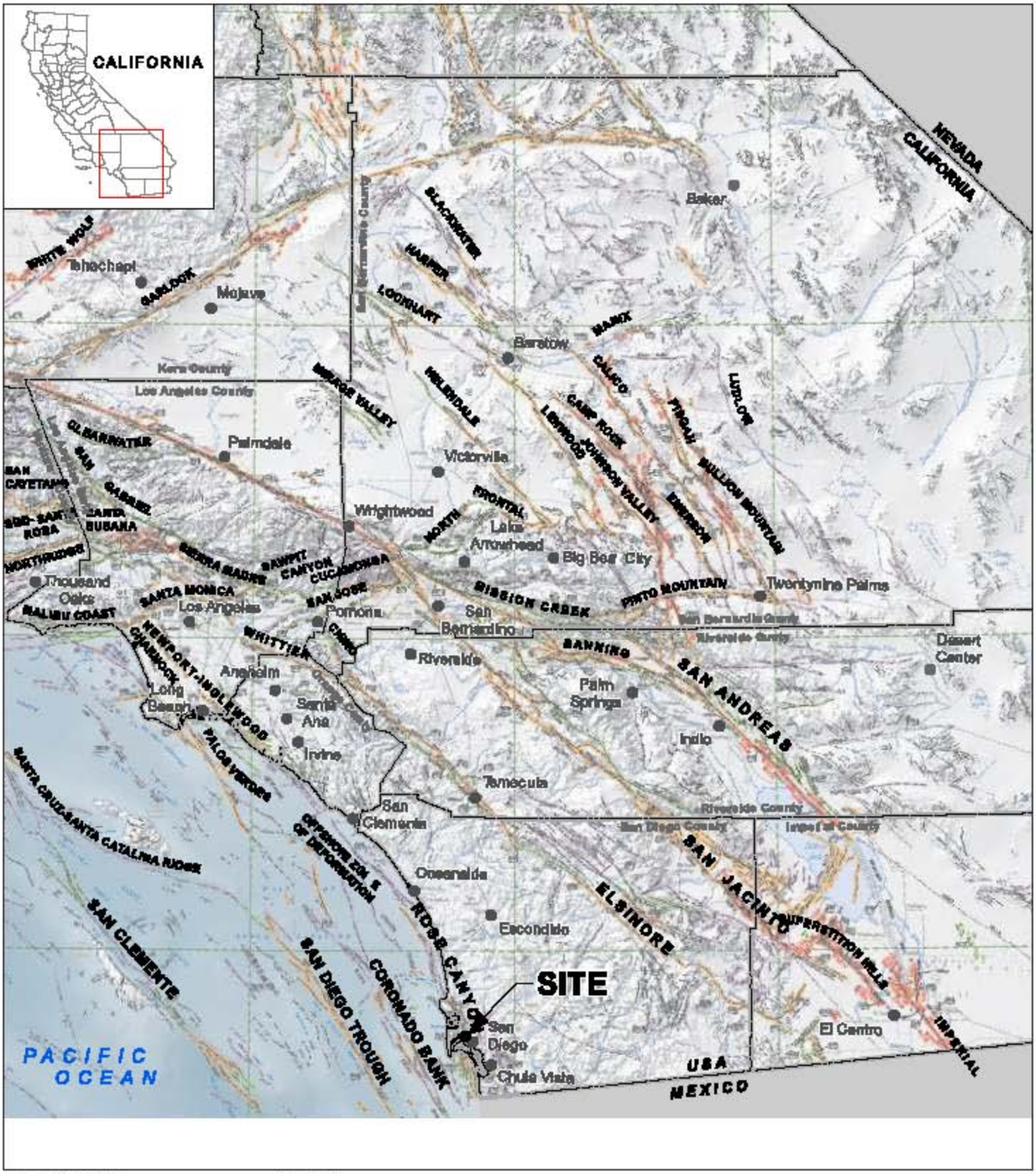

ATKINS

LEGEND

California Fault Activity

- Historically Active
- Holocene Active
- Late Quaternary (potential active)
- Quaternary (potential active)
- State / County Boundary

Notes: Directions, dimensions and locations are approximate.

0 15 30 MILES

SOURCE: Fault Activity Map of California, 2010, Jennings, C.W. & Bryant, W.A. California Geological Survey

FIGURE 5-11

Convair Lagoon Alternative

Fault Locations

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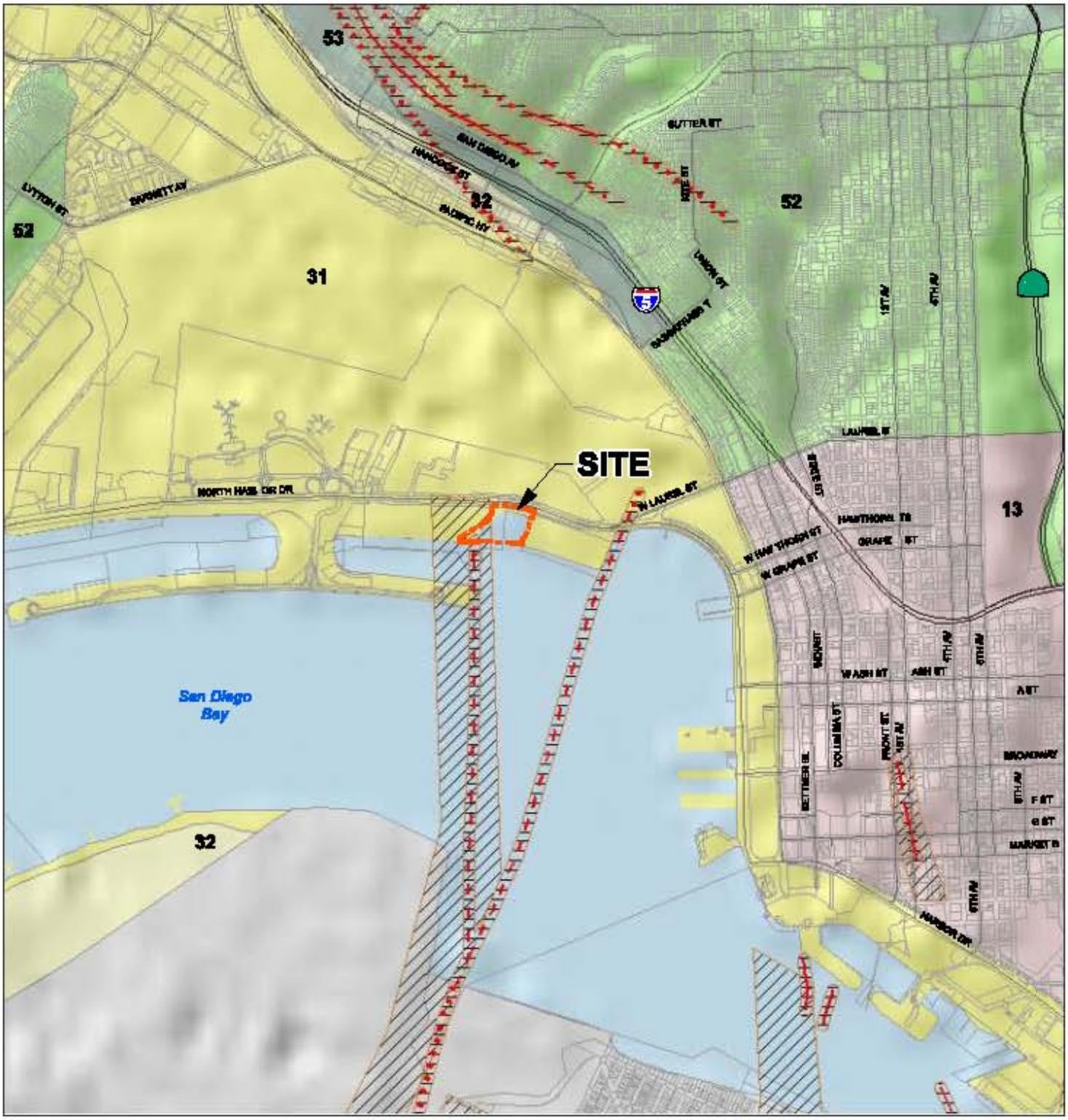

ATKINS

N

0 1,200 2,400

FEET

LEGEND

- Fault
- Inferred fault
- Concealed fault
- 11 active, alquist priolo earthquake Fault zone
- 12 potentially active, inactive, presumed Inactive, or activity unknown

- 13 — 13 downtown special fault zone
- 31 — 31 high liquefaction potential - shallow groundwater Major drainages, hydraulic fills
- 32 — 32 low Liquefaction potential - fluctuating Groundwater minor drainages
- 52 — 52 other level areas, gently sloping to steep terrain, Favorable geologic structure, low risk
- 53 — 53 level or sloping terrain, unfavorable geologic Structure, low to moderate risk

Notes: Directions, dimensions and locations are approximate.

SOURCE: City of San Diego Seismic Safety Study, Geological Hazards and Faults, SanGIS, 2006

FIGURE 5-12

Convair Lagoon Alternative

Geologic Hazards

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5.10.7 Greenhouse Gas Emissions/Climate Change

This section evaluates the potential for impacts related to greenhouse gas (GHG) emissions associated with implementation of the Convair Lagoon Alternative (Alternative). The information provided in this section is based on information published by the California Air Pollution Control Officers Association (CAPCOA), California Air Resources Board (CARB), the U.S. Environmental Protection Agency (EPA), and other sources, as cited throughout the section.

5.10.7.1 Existing Environmental Setting

Global Climate Change Overview

Climate change refers to any substantial change in measures of climate (such as temperature, precipitation, or wind) lasting for decades or longer. According to the EPA, the Earth's climate has changed many times during the planet's history, with events ranging from ice ages to long periods of warmth. Historically, natural factors such as volcanic eruptions, changes in the Earth's orbit, and the amount of energy released from the sun have affected the Earth's climate. Some GHGs, such as water vapor, occur naturally and are emitted to the atmosphere through natural processes, while others are emitted through human activities. Beginning late in the 18th century, human activities associated with the Industrial Revolution have changed the composition of the atmosphere and therefore very likely are influencing the Earth's climate. Over the past 200 years, the burning of fossil fuels, such as coal and oil, and deforestation has caused the concentrations of heat-trapping GHGs to increase substantially in the atmosphere.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effects of GHGs, the earth's temperature would be about 34 degrees Celsius (60 degrees Fahrenheit) cooler (California Climate Action Team [CCAT], 2007). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The Global Carbon Project (2008) released an update of the global carbon budget for the year 2007. The atmospheric carbon dioxide (CO_2) concentration in 2007 was 383 parts per million (ppm), 37 percent above the concentration at the start of the Industrial Revolution (about 280 ppm in 1750). The 2007 concentration was the highest known atmospheric CO_2 concentration during the last 650,000 years and probably during the last 20 million years. Results show that anthropogenic CO_2 emissions have been growing about four times faster since 2000 than the previous decade. The annual mean growth rate of atmospheric CO_2 was 2.2 ppm per year in 2007, up from 1.8 ppm in 2006.

Greenhouse Gases

GHGs are gases that trap heat in the atmosphere, analogous to the way a greenhouse retains heat. Common GHGs include water vapor, CO_2, methane, nitrogen oxide (N_2O), chlorofluorocarbons (CFCs), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Global atmospheric concentrations of CO_2, methane, and N_2O have increased markedly as a result of human activities since the year 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

Individual GHGs have varying potential to contribute to global warming and atmospheric lifetimes. Table 5-31 identifies the global warming potentials and atmospheric lifetimes of basic GHGs. The reference gas for global warming potential is CO_2. GHG emissions and global warming potentials are compared in relation to CO_2. The CO_2 equivalent (CO_2e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent measure. CO_2 has a global warming potential of one; by comparison, the global warming potential of methane is 21. This means that methane has a greater global warming effect than CO_2 on a molecule per molecule basis. One million metric tons (MT) of CO_2e represents the emissions of an individual GHG multiplied by its global warming potential.

Table 5-31: Global Warming Potentials and Atmospheric Lifetimes of Basic GHGs

GHG	Formula	100-year global warming potential[(1)]	Atmospheric lifetime (yrs)
Carbon dioxide	CO_2	1	50-200
Methane	CH_4	21	12
Nitrous oxide	N_2O	310	114
Sulphur hexafluoride	SF_6	23,900	3,200

[(1)] The warming effects over a 100-year time frame relative to CO_2
Source: EPA, 2011

State law defines GHGs to include the following compounds: CO_2, methane, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code [HSC], section 38505(g)). Descriptions of these compounds and their sources are provided below.

Carbon Dioxide (CO_2). CO_2 enters the atmosphere through the burning of fossil fuels (e.g., oil, natural gas, and coal), solid waste, and trees and wood products, and as a result of other chemical reactions, such as those required to manufacture cement. Globally, the largest source of CO_2 emissions is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of

the biological carbon cycle. Billions of tons of atmospheric CO_2 are naturally removed from the atmosphere by oceans and growing plants, and are emitted back into the atmosphere annually through natural processes, also known as 'sources.' When in balance, the total CO_2 emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s, human activities, including burning of oil, coal and gas and deforestation, have increased CO_2 concentrations in the atmosphere. In 2005, global atmospheric concentrations of CO_2 were 35 percent higher than they were before the Industrial Revolution (EPA, 2010).

Methane (CH_4). Methane is emitted from a variety of both human-related and natural sources. Human-related activities include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. It is estimated that 60 percent of global methane emissions are related to human-related activities. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources, such as wildfires. Methane emission levels from a particular source can vary significantly from one country or region to another, depending on many factors such as climate, industrial and agricultural production characteristics, energy types and usage, and waste management practices. For example, temperature and moisture have a significant effect on the anaerobic digestion process, which is one of the key biological processes that cause methane emissions in both human-related and natural sources. Also, the implementation of technologies to capture and utilize methane from sources such as landfills, coal mines, and manure management systems affects the emission levels from these sources (EPA, 2010).

Nitrous Oxide (N_2O). Nitrous oxide, more commonly known as "laughing gas," is produced naturally by microbial processes in soil and water. In addition to agricultural sources, some industrial processes, such as fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions, also contribute to its atmospheric load. It is used in rocket engines, racecars, and as an aerosol spray propellant. Global concentration of nitrous oxide in 1998 was 314 parts per billion (ppb) (EPA, 2010).

Fluorinated Gases. Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of Chlorodifluoromethane (HCFC-22), commonly used in air conditioning applications. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances, such as CFCs, Hydrochlorofluorocarbons (HCFCs), and halons. These gases are typically emitted in smaller quantities, but have higher global warming potential than other GHGs (EPA, 2011).

Global, National, Statewide, Countywide and Alternative Site GHG Inventories

In an effort to evaluate and reduce the potential adverse impact of global climate change, international, state and local organizations have conducted GHG inventories to estimate their levels of GHG emissions and removals. The following summarizes the results of these GHG inventories for global, national, state, countywide GHG emissions. The Convair Lagoon currently consists of open water, a paved asphalt area, a concrete pier, a concrete seawall, and an abandoned concrete sea plane marine ramp. The Alternative site does not include any existing sources of GHG emissions.

Global. Worldwide anthropogenic emissions of GHG in 2006 were approximately 49,000 million MT CO_2e, including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation, biomass decay) (Intergovernmental Panel on Climate Change [IPCC], 2007). CO_2 emissions from fossil fuel use accounts for 56.6 percent of the total emissions of 49,000 million MT CO_2e (includes land use changes) and all CO_2 emissions are 76.7 percent of the total. Methane emissions account for 14.3 percent and nitrous oxides emissions account for 7.9 percent of GHGs (IPCC, 2007).

United States. The EPA publication, *Draft Inventory of U.S. GHG Emissions and Sinks: 1990–2009,* provides a comprehensive emissions inventory of the nation's primary anthropogenic sources and sinks of GHG. Overall, total U.S. emissions rose by 13 percent from 1990 to 2008, while the U.S. gross domestic product (GDP) increased by 65 percent over the same period. Emissions decreased from 2008 to 2009, decreasing by six percent to 6,640 million MT CO_2e. GDP also decreased by three percent from 2008 to 2009. The publication indicated that the following factors were primary contributors to this decrease: 1) a decrease in economic output resulting in a decrease in energy consumption across all sectors, and 2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased and the price of natural gas decreased significantly (EPA, 2011).

California. The state of California is a substantial contributor of GHGs to the global inventory. It is the second largest contributor in the U.S. and the 16th largest in the world. According to the CARB (2010), California generated 478 million MT CO_2e in 2008. GHG emissions in California are mainly associated with fossil fuel consumption in the transportation sector (37 percent). Electricity production, from both in-state and out-of-state sources, is the second-largest source of GHG emissions (24 percent). Industrial sources, agriculture, forestry, recycling and waste, commercial, and residential activities comprise the balance of California's GHG emissions. Emissions of GHG were offset slightly in 2008 by the sequestration (intake) of carbon within forests, reducing the overall emissions by 4 million MT CO_2e, resulting in net emissions of about 474 million MT CO_2e.

San Diego County. In addition to the California GHG Inventory, a more specific county-wide GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center (EPIC) in 2008. This San Diego County GHG Inventory (SDCGHGI) is a detailed inventory that considers the unique characteristics of the region in calculating emissions. In 2006, a total of 34.4 million MT CO_2e was generated in the county of San Diego. This total includes both the incorporated and unincorporated areas. The largest contributor of GHGs was from the on-road transportation category, which comprised 46 percent (16 million MT CO_2e) of the total amount. The second highest contributor was the electricity category, which contributed 9 million MT CO_2e, or 25 percent of the total. Together the on-road transportation and electricity category comprised 71 percent of the total GHG emissions for the San Diego region. The remaining amount was contributed by natural gas consumption, civil aviation, industrial processes, off-road transportation, waste, agriculture, rail, water-borne navigation, and other fuels.

Regional Adverse Effects of Climate Change

The San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment explored what the San Diego region would be like in the year 2050 if current climate change trends continue. The paper projected potential adverse effects on the San Diego region related to climate, energy needs, public health, wildfires, water supply, sea level, and ecosystems. The climate model simulations exhibited warming across San Diego County, ranging from about 1.5 °F to 4.5 °F, particularly in inland areas. Temperature changes for areas along the coast would be moderated by the influence of the Pacific Ocean. The increase in peak demand for electricity for cooling could result in blackouts and power outages without adequate planning. With an aging population, extreme-heat conditions in the San Diego region are also a public health concern. Other health concerns include increased ozone air pollution levels due to an increase in sunny days, which can exacerbate asthma and other respiratory and cardiovascular diseases; increased fire-related injuries and death as intense wildfires occur more frequently; and coastal algal blooms, which can harbor toxic bacteria and other diseases. Drought years might occur as much as 50 percent more often and be considerably drier. Even with plans in place to conserve, recycle, and augment our available water, it is estimated San Diego County could face an 18 percent shortfall in water supply by 2050. Rising sea levels will have a major impact on the San Diego region's environment and economy, particularly in coastal areas. High tide flooding will threaten low-lying coastal communities and impact military, port and airport operations. High surf events and rising sea levels will cause even greater coastal erosion. Climate change will also add to the pressures on the variety of habitats and species in the county. The locations where environmental conditions are suitable for a particular species will shift with climate change. To survive, some animals and plants will have to relocate to find new habitat or potentially face extinction.

5.10.7.2 Regulatory Setting

Federal

Clean Air Act. The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the EPA to establish National Ambient Air Quality Standards (NAAQS) with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that CO_2 is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

Final Mandatory Reporting of GHG Rule. In September 2009, the EPA issued the Final Mandatory Reporting of GHG Rule. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 MT or more per year of GHG emissions are required to submit annual reports to EPA. The EPA estimates that the rule covers about 10,000 facilities nationwide, accounting for about 85 percent of GHG emissions in the United States.

State

Executive Order S-3-05. California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

1. By 2010, California shall reduce GHG emissions to 2000 levels;
2. By 2020, California shall reduce GHG emissions to 1990 levels; and
3. By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

The first CCAT Report to the Governor in 2006 contained recommendations and strategies to help meet the targets in Executive Order S-3-05. The latest CCAT Biennial Report was released in April 2010. It expands on the policy oriented 2006 assessment (CCAT, 2010a). This report provides new information and scientific findings. The new information and details in the CCAT Assessment Report include development of new climate and sea-level projections using new information and tools that have become available in the last two years; and evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts (CCAT, 2010b). The action items in the report focus on the preparation of the Climate Change Adaptation Strategy (CAS), required by Executive Order S-13-08.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, the California State Legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California. GHGs as defined under AB 32 include CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Under AB 32, the CARB has the primary

responsibility for reducing GHG emissions and managing the CCAT to coordinate statewide efforts and promote strategies that can be undertaken by many other California agencies. AB 32 requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to state-wide levels in 1990 by 2020. In general, AB 32 directs the CARB to do the following:

1. Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit;
2. Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020;
3. On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
4. On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that the CARB finds necessary to achieve the statewide GHG emissions limit; and
5. Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

Regarding the first two points above, the CARB has already made available a list of discrete early action GHG emission reduction measures. The CARB has also published a staff report titled *California 1990 GHG Emissions Level and 2020 Emissions Limit* (CARB, 2007a) that determined the statewide levels of GHG emissions in 1990. The CARB identified 427 million MT CO_2e as the total statewide aggregated GHG 1990 emissions level and 2020 emissions limit. Additionally, in December 2008, the CARB adopted the Climate Change Scoping Plan, which outlines the state's strategy to achieve the 2020 GHG limit (CARB 2008a). This Scoping Plan proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify energy sources, save energy, create new jobs, and enhance public health. The plan emphasizes a cap-and-trade program, but also includes the discrete early actions.

Senate Bill 97. Senate Bill (SB) 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directed the California Office of Planning and Research (OPR) to develop draft CEQA Guidelines for the mitigation of GHG emissions or the effects of GHG emissions. On December 30, 2009, the Natural Resources Agency adopted CEQA Guidelines amendments, which provide regulatory guidance with respect to the analysis and mitigation of the potential effects of GHG emissions. The amendments to the CEQA

Guidelines concerning the effects and mitigation of GHGs became effective on March 18, 2010.

Executive Order S-13-08. On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08, the Climate Adaptation and Sea Level Rise Planning Directive, which provides direction for how the state should plan for future climate impacts. Executive Order S-13-08 calls for the implementation of four key actions to reduce the vulnerability of California to climate change:

1. Initiate California's first statewide CAS that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies;
2. Request that the National Academy of Sciences establish an expert panel to report on sea level rise impacts in California in order to inform state planning and development efforts;
3. Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new and existing projects; and
4. Initiate studies on critical infrastructure projects and land-use policies vulnerable to sea level rise.

The 2009 CAS report summarizes the best known science on climate change impacts in the state to assess vulnerability and outlines possible solutions that can be implemented within and across state agencies to promote resiliency. This is the first step in an ongoing, evolving process to reduce California's vulnerability to climate impacts (California Natural Resources Agency, 2009).

California Code of Regulations Title 24, Part 6. Although it was not originally intended to reduce GHG emissions, California Code of Regulations (CCR) Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

Senate Bill 375. SB 375, approved by the governor on September 30, 2008, requires metropolitan planning organizations (MPOs) to include sustainable communities strategies (SCS), as defined, in their regional transportation plans (RTPs) for the purpose of reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies. Specifically, this bill makes findings and declarations concerning the need to make significant changes in land use and transportation

policy in order to meet the GHG reduction goals established by AB 32. SB 375 also requires ARB to develop regional GHG emission reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035 by September 30, 2010. The 18 MPOs in California will prepare a SCS to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the ability for the region to attain ARB's targets. Within eight years cities will be required to update housing plans required by the state.

The ARB Regional Targets Advisory Committee (RTAC), which was appointed in January 2009 to help address the requirements of SB 375, was tasked with recommending a method by which each major region of the state could reduce GHG emissions through more sustainable land use and transportation planning. After approximately 13 public meetings in Sacramento, the RTAC, in its September 29, 2009 report, recommended that regional targets be expressed as a percent per capita GHG emission reduction from a 2005 base year. This differs from the 1990 base year established in AB 32 due to a lack of reliable regional transportation and land use data from 1990 (according to the RTAC). The RTAC also recommended CARB use an interactive process with the regional MPOs, such as the San Diego Association of Governments (SANDAG), to set a single statewide uniform target that could be adjusted up or down to respond to regional differences. The targets may be expressed in gross MT, MT per capita, MT per household or in any other metric deemed appropriate by CARB, and were to be presented to the CARB Board by September 2010.

SANDAG is currently preparing its SCS as an element of the 2050 Regional Transportation Plan. A framework for the SCS has been developed and was presented to the public in October 2010.

Green Port Policy and Green Port Program

In 2008, the Board of Port Commissioners adopted the Green Port Policy (BPC Policy No. 736) to establish a policy for the Integration of overarching environmental sustainability principles and initiatives to guide business decisions, development and operations within the San Diego Unified Port District's (District) jurisdiction. The District developed a Green Port Program in order to support the goals of the Green Port Policy. The ultimate goal of the program is to achieve long-term environmental, societal and economic benefits through resource conservation, waste reduction and pollution prevention. The Green Port Program unifies the District's environmental sustainability goals in six key areas: energy, waste management, sustainable development, water, air, and sustainable business practices. As part of the program, the District sets measurable goals and evaluates progress in each area on an annual basis. The program continues the District's existing environmental efforts and expands these efforts through new programs and initiatives. The Green Port Policy and Green Port Program apply only to operations of the District and District buildings.

5.10.7.3 Methodology

The following section addresses potential impacts to global climate change which may result from GHG emissions that could result due to this project Alternative. Due to the nature of assessment of GHG emissions and the effects of climate change, impacts from individual projects are generally of insufficient magnitude by themselves to have a significant impact on global climate change or result in a substantial contribution to the global GHG inventory. Accordingly, discussion of this Alternative's GHG emissions and its impact on global climate are addressed in terms of the Alternative's contributions to a cumulative impact on the global climate.

Emissions of GHGs from construction are based on the construction assumptions detailed in Section 5.10.3, Air Quality. CO_2 emissions from the CDF construction activities are assessed using the Urban Emissions Model (URBEMIS 2007, version 9.2.4) distributed by the CARB, with the exception of emissions from the tug boats required for barge transport. Tug boat emissions factors were provided by the EPA in *Current Methodologies in Preparing Mobile Source Port-Related Emissions Inventories - Final Report* (EPA, 2009). The URBEMIS model does not calculate N_2O or methane emissions. The ratio of N_2O and methane emissions to CO_2 emissions in tug boat diesel exhaust (EPA, 2009) were used to estimate N_2O and methane emissions from the remaining construction equipment. The analysis assessed total GHG emissions from each individual phase of construction, including site preparation, jetty construction, sediment transportation and placement, and containment cap installation. A complete listing of the assumptions used in the model and model output is provided in the URBEMIS output worksheet and the Tug Boat GHG Emissions During Convair Lagoon Alternative Construction worksheet, which are included in Appendix N of this EIR. GHG emissions from construction activities at the Shipyard Sediment Site were quantified by LSA Associates, Inc. in the *Air Quality Analysis, Shipyard Sediment Project, California Regional Water Quality Control Board, San Diego Region* (2011), which is included as Appendix G to this EIR. The assumptions and calculated emissions for the construction phases associated with the Shipyard Sediment Site Project are incorporated into this analysis by reference.

GHG emissions from operation of the Alternative are discussed qualitatively due to the lack of operational sources of GHG emissions.

5.10.7.4 Thresholds of Significance

The 2010 amendments to the CEQA Guidelines amended Appendix G to provide the following questions for evaluating whether a project would have a significant impact on the environment as a result of GHG emissions. Section VII of Appendix G inquires whether a project would a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Threshold 5.10.7.1: Direct and Indirect Generation of GHGs and Consistency with Applicable Plans Adopted for Reducing GHGs. Currently, neither the CEQA statutes, OPR guidelines, nor the CEQA Guidelines prescribe specific quantitative thresholds of significance or a particular methodology for performing an impact analysis of GHG emissions. Significance criteria are left to the judgment and discretion of the Lead Agency. The method used to determine the significance of the Proposed Project's GHG emissions is also utilized for this analysis of the Convair Lagoon Alternative. Refer to the *Air Quality Analysis, Shipyard Sediment Project, California Regional Water Quality Control Board, San Diego Region* (LSA, 2011) for detailed information regarding selection of this significance threshold, which is described below.

As discussed in the GHG impact analysis for the Proposed Project, the CARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions. The proposed draft Guidance states that some small residential and commercial projects, emitting 1,600 metric tons of CO_2e per year or less, would clearly not interfere with achieving the state's emission reduction objectives in AB 32 (and EO S-03-05). The Guidance does not state or imply that projects emitting more than 1,600 metric tons of CO2e per year will necessarily result in a significant impact. Additionally, the Guidance does not establish a quantifiable threshold for construction emissions.

The County of San Diego has published the County of San Diego Interim Approach to Addressing Climate Change in CEQA Documents (DPLU, 2010a), which states that a project would result in potentially significant GHG emissions impacts if it would result in a net increase of more than 900 MT CO_2e emissions annually over baseline conditions. GHG emissions that would be below the County's threshold would also be consistent with the CARB's guidance for screening potential GHG impacts described above. According to the County's guidelines, construction emissions should be amortized over the lifetime of a project and added to annual operational emissions. The project lifetime is assumed to be 30 years. Consistent with the thresholds of significance for the Proposed Project, the Convair Lagoon Alternative would result in a significant impact if it would contribute to a long-term ongoing increase in GHG emissions. For the purposes of this analysis, a long-term ongoing increase in GHG emissions is considered to be an annual amortized increase in GHG emission that exceeds 900 MT of CO_2e.

Threshold 5.10.7.2: Hazards Related to Climate Change. The CEQA Guidelines do not include a guideline for addressing the potential adverse effects of climate change on a proposed project. For the purposes of this analysis, the Alternative would result in a significant impact if it would result in increased exposure to one or more of the potential adverse effects of global warming identified by the San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment.

5.10.7.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.7.1: Direct and Indirect Generation of GHGs and Consistency with Applicable Plans Adopted for Reducing GHGs. An inventory of the GHG emissions (CO_2, methane, and nitrous oxides) that would be emitted by construction activities associated with the Alternative is presented below. The emissions of the individual gases were estimated and then converted to their CO_2e using the individually determined GWP of each gas. The analysis methodology used for the inventory assumes a "business as usual" scenario for the Alternative. That is, the analysis does not take into account any GHG emissions reducing features that may be implemented during construction. A discussion of operational emissions is also presented.

Construction Emissions. Construction of the CDF, sediment transport, as well as the construction activities associated with the dredging and related activities at the Shipyard Sediment Site would result in temporary emissions of GHGs from the operation of construction equipment, truck trips for the import and export of material, worker vehicle trips, and construction supply vendor vehicles. The equipment associated with this Alternative is discussed in detail Section 5.10.3, Air Quality, and includes heavy construction equipment for construction and dredging, and tugboats for barge towing. GHG emissions for construction from all equipment other than tugboats are based on the assumptions listed for the worst-case daily construction scenario described in Section 5.10.3, Air Quality. Tugboat emissions are based on the report *Current Methodologies in Preparing Mobile Source Port-Related Emissions Inventories - Final Report* (EPA, 2009). While the impact analysis for criteria pollutants is based on the maximum daily emissions from tugboat operation, the GHG inventory is based on the total hours of tugboat operation that would be required. As discussed in Section 5.10.1, Convair Lagoon Alternative Description, approximately 98 barge trips would be required for sediment transport and the one-way travel distance is approximately five miles. The speed limit in the bay in lagoon areas and anchorage areas is 5 miles per hour (mph). Outside of the 5 mph speed limit zones, the bay is not regulated by a speed limit and is to be navigated at a safe and prudent speed (District, 2011a). Therefore, to determine the worst-case scenario, it is assumed that tugboats would be travelling at 5 mph for a round trip travel time of two hours. Additionally, tugboats would be idling during barge loading at the Shipyard Sediment Site and unloading at the Convair Lagoon Alternative site. It is assumed that loading and unloading would take four hours each (Design Rate Simulations, 2011). A complete list of tugboat emissions assumptions is included in Appendix N. Total GHG emissions from the Convair Lagoon Alternative site construction activities are considered the worst-case annual GHG emissions for this Alternative's construction phases.

Under the Shipyard Sediment Site Project, construction activities from the Proposed Project would result in up to 7,750 MT CO_2e per year (LSA, 2011), based on the worst-case maximum GHG emissions. Construction of the Convair Lagoon Alternative involves activities associated with the Proposed Project (e.g., site preparation, dredging, dredge

materials transport to a landside location for drying and operation of the landside drying area for 15 percent of the dredge material) along with the Convair Lagoon Alternative construction activities, transport of dredge material to the Convair Lagoon Alternative site, placement of the dredge material and installation of the sand and asphalt cap. Construction activities at the Shipyard Sediment Site would contribute 2,612 MT CO_2e per year to Convair Lagoon Alternative GHG emissions. Construction activities at the Shipyard Sediment Site may take up to 18 months; therefore, a total of 3,918 MT CO_2e would potentially be generated by construction activities at the Shipyard Sediment Site. Construction of the Convair Lagoon CDF, including transport of dredged sediment, placement of dredged sediment, and cap construction would contribute approximately a total of 4,175 MT over the 15 month construction period, resulting in total construction emissions of 8,093 MT CO_2e (Table 5-32). To determine the contribution of construction emissions to long-term ongoing annual GHG emissions, GHG emissions from construction are amortized over the lifetime of the CDF, which is assumed to be 30 years. Construction associated with the Alternative would contribute approximately 270 MT CO_2e to the long-term ongoing annual emissions inventory. Therefore, long-term annual GHG emissions from construction under the Convair Lagoon Alternative would not exceed the thresholds established by the County of San Diego or CARB.

Table 5-32: Estimated Annual GHG Emissions from Alternative Construction

Emission Source	GHG Emissions (Metric Tons CO_2e)
Demolition of Existing Facilities	109
Excavation and Construction of Containment Barrier	788
Extension of Storm Drains	118
Sediment Transport and Placement	2,857
Construction of Sand Cap	303
Shipyard Sediment Site Construction	3,918
Total Construction Emissions	**8,093**
Amortized Construction Emissions	**270**

Source: URBEMIS 2007, EPA 2009
Note: Amortization is based on a 30 year lifetime.

Operational Emissions. Upon completion of construction, the site would consist of undeveloped land with an elevation approximately 10 feet above Mean Lower Low Water (MLLW). The Convair Lagoon Alternative does not include the construction or development of any buildings or structures and no permanent dewatering would be required. Therefore, no stationary sources are included in this Alternative that would generate GHG emissions. Occasional vehicle trips may be required for monitoring, maintenance, and, repair of the cap. However, due to the limited occurrence of these trips, annual emissions from these vehicle trips would be negligible. The operation of this Alternative would not contribute to an ongoing increase in GHG emissions and this impact would be less than significant.

Similar to the Proposed Project, the Convair Lagoon Alternative would result in short-term emissions associated with the use of construction equipment, but would not contribute long-term operational emissions because there are no on-site stationary sources or operational vehicular trips. Therefore, the amortized construction emissions in Table 5-32 represent the total long-term annual GHG contribution of the Convair Lagoon Alternative. Annual GHG emissions would be approximately 270 MT CO_2e and would not exceed the screening level thresholds established by the County of San Diego or CARB. Similar to the Proposed Project, this impact is less than significant.

Threshold 5.10.7.2: Hazards Related to Climate Change. The San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment projected potential adverse effects on the San Diego region related to climate, energy need, public health, wildfires, water supply, sea level, and ecosystems. The following analysis discusses potential hazards related to climate change that the Convair Lagoon and surrounding area may be subject to in the future.

Warming across San Diego County is projected to increase 1.5 °F to 4.5 °F between the years 2000 and 2050. Warmer temperatures would increase the peak demand for electricity and could result in blackouts and power outages. However, the proposed Alternative does not include any structures that would be used for human occupation. Additionally, the CDF does not include any features that would require electricity. Therefore, the proposed Alternative would not result in an increased exposure of people to higher temperatures or result in an increased number of blackouts as result of increased peak energy demand.

Regarding public health, increases in ozone air pollution levels as a result of climate change could exacerbate asthma and other respiratory and cardiovascular diseases. However, as discussed in Section 5.10.3, Air Quality, the proposed Alternative would not result in operational sources of ozone precursors. Therefore, the proposed Alternative would not significantly increase exposure of people to health risks from ozone. Fire-related injuries and death are likely to increase as intense wildfires occur more frequently, however, exposure to fire risk from this Alternative would not increase because it does not propose any structures for occupancy and is not located adjacent to wildland. Additionally, cases of mosquito-related diseases could increase, and algal blooms with toxic bacteria could occur more frequently along the coast. However, this Alternative does not include any structures for occupancy or any other facilities, such as recreational areas, for public use. Therefore, the proposed Alternative would not result in an increased exposure to public health concerns.

It is estimated that San Diego County could face an 18 percent shortfall in water supply by 2050. However, the proposed Alternative would not result in an increase in demand for potable water, therefore it would not impact water supply.

Rising sea levels have the potential to result in high tide flooding, cause even greater coastal erosion and scouring, and put pipelines at risk for saltwater intrusion. The mean sea level rise values range from approximately 12 to 18 inches by the year 2050. Following

construction, the height of the CDF would be approximately 10 feet MLLW, that is, 10 feet above the average lowest daily water height. As discussed in Section 5.10.4, Biological Resources, land that is above 7.8 feet MLLW is generally above the area that is inundated by tidal action. The CDF would be four feet above this height. Therefore, even the highest predicted level of sea level rise, 18 inches, would not overtop the CDF. The containment barrier is designed to be submerged in order to separate the sediment from the bay. A change in sea level would not affect the function of the containment barrier because of its design and the approximately 2.7 feet difference between the highest predicted level of sea level rise and the top of the containment barrier. In addition, the CDF does not contain any structures; therefore, no flooding impacts to occupied structures would occur. This Alternative also includes extending two existing storm drains which currently experience saltwater intrusion and therefore this would continue with the increase in sea level elevation. Therefore, the proposed project would not result in an increased exposure to risks from rising sea levels.

Climate change will also add to the pressures on the variety of habitats and species in the county by making suitable habitat less available. As discussed in Section 5.10.4, Biological Resources, the proposed Alternative would mitigate all of its potentially significant impacts to biological resources to a less than significant level. Implementation of mitigation measures 5.10.4.3 and 5.10.4.4 would replace habitat disturbed by this Alternative. Habitat would be provided at a 1:1 or higher ratio depending on the habitat. Therefore, for most habitats additional habitat would be provided compared to existing conditions. As a result, the proposed Alternative would not result in the increased exposure of biological resources impacted by this alternative to risks from climate change.

Mitigation Measures

No significant impacts related to GHG emissions or climate change hazards would occur from implementation of the Convair Lagoon Alternative. Therefore, no mitigation measures are required.

Cumulative Impacts

As discussed above, the County of San Diego has determined that a project would result in potentially significant GHG impacts if it would result in a net increase of more than 900 MT CO_2e emissions annually over baseline conditions. The County determined this screening level based on the potential for individual projects to contribute to regional cumulative GHG emissions. Therefore, a project that would generate fewer than 900 MT of CO_2e would not result in a direct or cumulative impact related to GHG emissions. As discussed in Section 5.10.7.5.1, the Convair Lagoon Alternative would result in annual GHG emissions of approximately 270 MT CO_2e. The proposed Alternative would therefore not result in a cumulatively considerable contribution to cumulative GHG emissions.

Level of Significance After Mitigation

No significant impacts related to GHG emissions or climate change hazards would occur from implementation of the Convair Lagoon Alternative. Without mitigation, all impacts are less than significant.

Significant Unavoidable Adverse Impacts

No significant and unavoidable impacts related to GHGs would occur from implementation of the Convair Lagoon Alternative.

5.10.8 Hazards and Hazardous Materials

This section describes the existing setting regarding hazards and hazardous materials and potential effects on the alternative site and surrounding areas that would occur from implementation of the Convair Lagoon Alternative. Hazards include topics such as airport operations, emergency response and evacuation plans, while hazardous materials pertain to hazardous chemicals or substances. Hazardous materials information in this section is based on the *Hazards and Hazardous Materials Technical Report (HHMTR) for the Shipyard Sediment Site Alternative Analysis Convair Lagoon,* prepared by Ninyo and Moore in May, 2011. The HHMTR report is included as Appendix M in this EIR.

5.10.8.1 Existing Environmental Setting

Existing Hazardous Materials Contamination

Hazardous materials typically require special handling, reuse, and disposal because of their potential to harm human health and the environment. The California Health and Safety Code (H&SC) defines a hazardous material as:

> "Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment." (H&SC, section 25501)

As part of the HHMTR, a search of the Department of Toxic Substance Control (DTSC) Envirostor Database, the State Water Resources Control Board (State Water Board) GeoTracker Database and the Cortese List was performed to identify on site or adjacent properties that have been previously documented as having experienced significant unauthorized releases of hazardous substances.

The DTSC Envirostor Database list includes the following site types: Federal Superfund Sites; State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. The GeoTracker database is a geographic information system that provides online access to hazardous material contamination data related to underground fuel tanks, fuel pipelines and public drinking water supplies. Cortese List data resources include the above mentioned databases, in addition to a list of solid waste disposal sites identified by State Water Board with waste constituents above hazardous waste levels outside the waste management unit; a list of "active" Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO) from State Water Board; and a list of hazardous waste facilities subject to corrective action pursuant to section 25187.5 of the H&SC, identified by DTSC.

In total, five sites, including the Convair Lagoon and four adjacent properties, were identified in the records search as having existing or past hazardous materials contamination. These sites are described below.

Convair Lagoon. Convair Lagoon, which is coincident with the Convair Lagoon Alternative site, is subject to California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) Waste Discharge Requirement (WDR) Order No. 98-21 and has two active CAOs: CAO 86-92 and CAO R9-2004-0258. A brief summary of these documents is provided below.

5. **CAO 86-92 and Amendments:** CAO 86-92 was issued on October 17, 1986, to Teledyne Ryan Aeronautical (TDY) for the discharge of Polychlorinated biphenyl (PCBs), metals, and volatile organic compounds (VOCs) into the storm water conveyance system that discharged into Convair Lagoon. Sediments in the lagoon from this discharge were found to contain PCBs at concentrations ranging from 1 to 1,800 milligrams per kilogram (mg/kg) as dry weight from the surface to depths of 10 feet. These concentrations were considered by the San Diego Water Board to require clean- up and abatement to be protective of the waters of the state. Between 1986 and 1998, PCB wastes were removed from the storm water conveyance system at the TDY facility and a sand cap was constructed to isolate the contaminated sediments from the environment (identified in the CAO as sediments with PCBs at concentrations at or exceeding 4.6 mg/kg as dry weight). The approximately 7-acre sand cap covered areas within the Convair Lagoon site where sediments contained PCBs at concentrations exceeding 4.6 mg/kg as dry weight. As part of the capping project, approximately 1,400 square feet of intertidal land was converted to upland.
6. **San Diego Water Board WDR 98-21:** Following the construction of the sand cap under CAO 86-92, the San Diego Water Board issued WDR 98-21, Closure and Post-Closure maintenance of the Convair Lagoon Sand Cap, which regulates the sand cap and associated monitoring, maintenance, and, repairs. The WDR states that the action level to trigger repair and or investigation of the cap or cleaning of the storm water conveyance system is 4.6 mg/kg dry weight in the sediments. WDR 98-21 also provides a list of water quality objectives that apply to the water within Convair

Lagoon. Some of objectives provided are for dissolved oxygen, pH, oil and grease, suspended sediment load/discharge rate, turbidity, and toxicity.

7. **CAO R9-2004-0258 and Amendments:** CAO R9-2004-0258 states that PCBs, VOCs, and heavy metals from the former manufacturing activities at the TDY facility have, "caused and threatens to cause conditions of pollution, contamination, and nuisance by exceeding applicable water quality objectives for toxic pollutants to San Diego Bay." The order also states that PCB concentrations have continued to be found in the storm water conveyance system at the TDY facility even after clean out and replacement of portions of the system. In addition, PCBs discharged from the storm water conveyance system are being deposited on the surface of the sand cap at Convair Lagoon. PCBs have been detected on the surface of the sand cap at concentrations ranging from 1.77 to 20.44 mg/kg, which exceeds the clean-up level of 4.6 mg/kg dry weight established in CAO 86-92. Releases of waste to soil and groundwater are also noted from the former land-side aerospace operations, which include impacts from chlorinated solvents and hexavalent chromium. The CAO states that these discharges may reach San Diego Bay through the migration of groundwater into the storm water conveyance system or directly into the bay.

    a. CAO R9-2004-0258 required a site investigation and characterization report be prepared. This report was completed by Geosyntec on December 19, 2005 and included an evaluation of soil, groundwater, and sediment impacts. A remedial investigation/ feasibility study (RI/FS) was also required and was submitted in March 2007. The RI/FS selected in-situ bioremediation to address chlorinated solvents in groundwater, in-situ reduction to address hexavalent chromium in groundwater, and excavation and off-site disposal of impacted soil and concrete. Details of the proposed remedial actions are described in a Remedial Action Plan.

    b. In accordance with CAO R9-2004-0258, groundwater monitoring is currently performed on a semi-annual basis at the TDY facility and at the Convair Lagoon site. Eight monitoring wells (MWCL-1 through MWCL-8R) have been installed on the landside portion of the Convair Lagoon site and are used to monitor potential impacts to San Diego Bay. The most recent groundwater monitoring report is from July 2010, which states that low levels of VOCs and trace levels of PCBs were detected in the northwestern portion of the site. However, the monitoring report indicated these levels may have been a result of cross-contamination in the laboratory.

    c. CAO R9-2004-0258 states that there are three areas of concern with regard to the transport of wastes from the TDY facility to Convair Lagoon: 1) Convair Lagoon shoreline groundwater, 2) sediment in the storm water conveyance system that empties into Convair Lagoon/San Diego Bay, and 3) VOC-impacted groundwater seeping into the 54-inch and 60-inch storm drains. Although this CAO states that sediment transport to the lagoon is a concern, the storm drain inlets and laterals on the TDY facility were capped with concrete; therefore, no additional input of sediment to the storm water

conveyance system from the TDY facility is known to be occurring. However, there is the potential for PCB impacted sediments to be transported to Convair Lagoon from sites up gradient of the TDY facility, which continue to discharge into the storm water conveyance system. Specific sites up gradient of TDY have not been identified as sources of PCBs in the storm water conveyance system. There is a potential risk to human health associated with the incidental ingestion of or contact with the sediments in the lagoon. The CAO requires that soil and groundwater contamination at the TDY facility be remediated to the identified clean up levels, visible sediment should be removed from within the 60-inch storm drain and associated energy dissipater, and a remedial action plan be submitted to detail how the cleanup levels will be achieved. The San Diego Water Board is responsible for ensuring that the remediation is performed in accordance with the requirements of this CAO.

d. As required by the San Diego Water Board in CAO R9-2004-0258, issued for the TDY facility, numerous investigations have been performed to evaluate impacted soil and groundwater, potential remedial alternatives, and potential sources of PCBs in the storm water conveyance system. The potential sources of PCBs in the storm water conveyance system have been identified as on-site and off-site soil, groundwater, sediment, building materials, and rainfall.

e. A Remedial Investigation Feasibility Study (RI/FS) was prepared by the San Diego Water Board, which states that the recommended remedial action for addressing PCB impacted sediments in the 60-inch storm water conveyance system is to clean out sediments and remove the storm water conveyance system laterals on the site after the existing TDY site buildings (a potential source of PCBs) have been removed. The RI/FS also states that the recommended remedial action for PCB impacts to groundwater at the TDY site is to continue groundwater monitoring under the supervision of the San Diego Water Board to confirm that PCB impacted groundwater is not migrating into Convair Lagoon at levels that exceed existing regulatory limits. The San Diego Water Board will be responsible for ensuring the remediation of the TDY facility is performed in accordance with the requirements of the applicable CAOs.

U.O.P. Inc., Fluid Systems Division. The U.O.P. Inc facility is located at 2980 North Harbor Drive, directly north of the Convair Lagoon Alternative site. This facility is listed on the Envirostor database as a Corrective Action. A Corrective Action property is defined as a property that treated, stored, disposed, or transferred hazardous waste at which investigation or cleanup activities occurred that were either permitted or eligible for a permit. The status of the facility is listed as inactive, needs evaluation.

General Dynamics Convair. The General Dynamics Convair Site is located at 2980 North Harbor Drive, directly north of the Convair Lagoon Alternative site. This facility is listed on the GeoTracker database as having a closed leaking underground storage tank case. The case was reported as having impacted soil only with aviation fuel and was closed in 1996.

U.S. Coast Guard Facility. The U.S. Coast Guard Facility is located at 2710 North Harbor Drive, directly east of the Convair Lagoon Alternative site. The Coast Guard Facility was listed on the Envirostor database as a Military Evaluation facility and on the GeoTracker database as a Cleanup Program Site and as having a closed Leaking Underground Storage Tank (LUST) case. The Envirostor listing indicates that the facility is listed as a Formerly Used Defense Site (FUDS) that is inactive and needs evaluation. However, the facility is currently operating as a military facility and is not listed on the U.S. Army Corps of Engineers (USACE) FUDS database as a site where the USACE has performed or is planning to perform work. Therefore, it is possible that this listing is an error. A phone call was placed to the USACE to clarify this listing, but was not returned as of the date of this report. The GeoTracker Cleanup Program site listing indicates that the case was closed as of 1987; however, no additional information was provided. The GeoTracker LUST case listing indicates that the case was a release of aviation fuel to groundwater that was closed in 2001; however, no additional information was provided.

Teledyne Ryan Aeronautical. The TDY facility is located at 2710 North Harbor Drive, directly north of the Convair Lagoon Alternative site. This facility is listed on the GeoTracker database as a Cleanup Program Site and has four closed LUST cases. Three LUST cases are listed as having impacted soil only with diesel (2 cases) or gasoline (1 case). The cases are listed as closed in 1992, 1994, and 2000. One case is listed has having impacted groundwater with a release of diesel fuel; however, the case was closed in 2004 and no further action was required. The Cleanup Program Site listing indicates that the TDY facility is currently undergoing remediation. This listing includes all work performed under San Diego Water Board WDR 98-21, CAO 86-92 and CAO R9-2004-0258, as discussed above under Convair Lagoon. The wastes discharged at the former facility include PCBs, VOCs, semi-volatile organic compounds (SVOCs), Polycyclic aromatic hydrocarbons (PAHs), metals, and total petroleum hydrocarbons.

Hazardous Waste Transportation

In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by the DTSC. The DTSC maintains a list of active registered hazardous waste transporters throughout the state. The process of transporting hazardous waste often involves transfer facilities. A transfer facility is any facility that is not an on-site facility that is related to the transportation of waste. These facilities include but are not limited to, loading docks, parking areas, storage areas, and other similar areas. Although not all transfer facilities hold hazardous waste, any

operator of a facility that accepts hazardous waste for storage, repackaging or bulking must obtain formal authorization for those activities through the hazardous waste permit process. Hazardous waste transporters are exempt from storage facility permit requirements so long as they observe the limits on storage time and handling.

Hazardous Materials Disposal

Through the Resource Conservation and Recovery Act (RCRA), Congress directed the EPA to create regulations that manage hazardous waste from "the cradle to the grave." Under this mandate, the EPA has developed strict requirements for all aspects of hazardous waste management including the recycling, treatment, storage, and disposal of hazardous waste. Facilities that provide recycling, treatment, storage, and disposal of hazardous waste are referred to as Treatment, Storage and Disposal Facilities (TSDF). Regulations pertaining to TSDFs are designed to prevent the release of hazardous materials into the environment and are more stringent than those that apply to generators or transporters.

Hazardous Materials Release Threats

When unexpectedly released into the environment, hazardous materials may create a significant hazard to the public or environment. Hazardous materials are commonly stored and used by a variety of businesses and could be released into the environment through improper handling or accident conditions. However, businesses that store and use hazardous materials are required to create Hazardous Materials Business Plans (HMBP) and Risk Management Plans. HMBPs establish a plan to minimize hazards to human health and the environment from fires, explosions, or an unplanned release of hazardous substances into air, soil, or surface water. Risk Management Plans include a hazard assessment program, an accidental release prevention program, and an emergency response plan.

County of San Diego Site Assessment and Mitigation (SAM) Program. The San Diego County SAM Program, within the Land and Water Quality Division of the Department of Environmental Health (DEH), has a primary purpose to protect human health, water resources, and the environment within San Diego County by providing oversight of assessments and cleanups in accordance with the California H&SC and the California Code of Regulations (CCR). The SAM's Voluntary Assistance Program also provides staff consultation, project oversight, and technical or environmental report evaluation and concurrence (when appropriate) on projects pertaining to properties contaminated with hazardous substances. The DEH SAM Program maintains the SAM list of contaminated sites that have previously or are currently undergoing environmental investigations and/or remedial actions.

The SAM Program covers all of San Diego County and includes remediation sites of all sizes. The SAM case listing is revised and updated regularly and the number of sites on the list is continually changing, but may contain upwards of 5,000 cases at one time. There is

some overlap with the information in other regulatory databases; however, the list also contains sites that often are not covered by some of the larger regulatory databases.

Airport Hazards

The areas of concern when addressing airport hazards are over-flight safety, airspace protection, flight patterns and land use compatibility. Dealing with these concerns contributes to the overall safety of passengers, pilots and crews on flights, in addition to the safety of people on the ground. Hazards associated with airports can have serious human safety and quality of life impacts.

Public Airport Hazard Prevention. Airport Land Use Compatibility Plans (ALUCPs) are plans that guide property owners and local jurisdictions in determining what types of proposed new land uses are appropriate around airports. They are intended to protect the safety of people, property and aircraft on the ground and in the air in the vicinity of the airport. They also protect airports from encroachment by new incompatible land uses that could restrict their operations. ALUCPs are based on a defined area around an airport known as the Airport Influence Area. Airport Influence Areas are established by factors including airport size, operations, configuration, as well as the safety, airspace protection, noise, and overflight impacts on the land surrounding an airport. ALUCPs do not affect existing land uses.

Military Airport Hazard Prevention. Guidelines set forth by the Department of Defense (DOD) as part of its Air Installation Compatible Use Zone (AICUZ) Program address land use compatibility and safety policies for military airport runways. The AICUZ was initiated in the 1970s to recommend land uses that may be compatible with noise levels, accident potential and flight clearance requirements associated with military airfield operations. DOD prepared individual AICUZ plans for all major military airports. The objective of this program is to encourage compatible uses of public and private lands in the vicinity of military airfields through the local communities' comprehensive planning process. The Accident Potential Zone (APZ) is unique to military airfields, and is generally applied to all U.S. Navy and Marine Corps airfields within the United States designation of APZs is a component of the AICUZ. These zones describe the probable impact area if an accident were to occur, based on historical accident data.

5.10.8.2 Regulatory Setting

Federal

Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. Federal hazardous waste laws are generally promulgated under the RCRA. These laws provide for the "cradle to grave" regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is

required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. DTSC is responsible for implementing the RCRA program as well as California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

Comprehensive Environmental Response, Compensation, and Liability Act and the Superfund Amendments and Reauthorization Act of 1986. Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, on December 11, 1980. 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 Superfund Amendments and Reauthorization Act (SARA) amended the CERCLA on October 17, 1986. SARA stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites; required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations; provided new enforcement authorities and settlement tools; increased state involvement in every phase of the Superfund program; increased the focus on human health problems posed by hazardous waste sites; encouraged greater citizen participation in making decisions on how sites should be cleaned up; and increased the size of the trust fund to $8.5 billion.

Chemical Accident Prevention Provisions. When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. These rules, which built upon existing industry codes and standards, require companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program.

Emergency Planning Community Right-to-Know Act. The Emergency Planning Community Right-to-Know Act (EPCRA), also known as SARA Title III, was enacted in October 1986. This law requires any infrastructure at the state and local levels to plan for chemical emergencies. Reported information is then made publicly available so that interested parties may become informed about potentially dangerous chemicals in their community. EPCRA sections 301 through 312 are administered by EPA's Office of Emergency Management. EPA's Office of Information Analysis and Access implements the EPCRA section 313 program. In California, SARA Title III is implemented through the California Accidental Release Prevention Program (CalARP).

Hazardous Materials Transportation Act. The U.S. Department of Transportation regulates hazardous materials transportation under Title 49 of the Code of Federal Regulation (CFR). State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California

Highway Patrol and the California Department of Transportation. These agencies also govern permitting for hazardous materials transportation. Title 49 CFR reflects laws passed by Congress as of January 2, 2006.

EPA Region 9, Preliminary Remediation Goals. Region 9 is the Pacific Southwest Division of the EPA, which includes Arizona, California, Hawaii, Nevada, Pacific Islands, and over 140 Tribal Nations. Preliminary Remediation Goals (PRGs) are tools for evaluating and cleaning up contaminated sites. PRGs for the Superfund/RCRA programs are risk-based concentrations, derived from standardized equations combining exposure information assumptions with EPA toxicity data. They are considered to be protective for humans, including sensitive groups, over a lifetime. However, PRGs are not always applicable to a particular site and do not address non-human health issues such as ecological impacts. Region 9's PRGs are viewed as agency guidelines, not legally enforceable standards.

International Fire Code. The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code (IBC) use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every three years.

Federal Aviation Administration Functions. The Federal Aviation Administration (FAA) has primary responsibility for the safety of civil aviation. The FAA's major functions regarding hazards include the following: 1) developing and operating a common system of air traffic control and navigation for both civil and military aircraft, 2) developing and implementing programs to control aircraft noise and other environmental effects of civil aviation, 3) regulating United States commercial airspace transportation, and 4) conducting reviews to determine that the safety of persons and property on the ground are protected.

U.S. Department of Defense Air Installations Compatible Use Zone Program. Safety compatibility criteria for military air bases are set forth through the AICUZ Program administered by the DOD. This program applies to military air installations located within the United States, its territories, trusts, and possessions. The AICUZ Program has the following four purposes: 1) to set forth DOD policy on achieving compatible use of public and private lands in the vicinity of military airfields, 2) to define height and land use compatibility restrictions, 3) to define procedures by which AICUZ may be defined, and 4) to

provide policy on the extent of Government interest in real property within these zones that may be retained or acquired to protect the operational capability of active military airfields.

State

Government Code Section 65962.5 (a), Cortese List. The Hazardous Waste and Substance Sites Cortese List is a planning document used by the state, local agencies and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code section 65962.5 requires the California EPA to develop at least annually an updated Cortese List. DTSC is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Health & Safety Code, Hazardous Materials Release Response Plans and Inventory. Two programs found in the H&SC Chapter 6.95 are directly applicable to the CEQA issue of risk due to hazardous substance release. In San Diego County, these two programs are referred to as the Hazardous Materials Business Plan (HMBP) Program and the CalARP program. DEH is responsible for the implementation of the HMBP program and the CalARP program in San Diego County. The HMBP and CalARP Program provide threshold quantities for regulated hazardous substances. When the indicated quantities are exceeded, a HMBP or Risk Management Plan (RMP) is required pursuant to the regulation. Congress requires the EPA Region 9 to make RMP information available to the public through the EPA's Envirofacts Data Warehouse. The Envirofacts Data Warehouse is considered the single point of access to select EPA environmental data.

Title 14 Division 1.5 of the California Code of Regulations. CCR Title 14 Division 1.5 establishes the regulations for California Department of Forestry and Fire Protection (Cal Fire) and is applicable in all State Responsibility Areas (SRA)—areas where Cal Fire is responsible for wildfire protection. Among other things, Title 14 establishes minimum standards for emergency access, fuel modification, setback to property line, signage, and water supply.

Title 22 of the California Code of Regulations & Hazardous Waste Control Law, Chapter 6.5. The DTSC regulates the generation, transportation, treatment, storage and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Title 23 of the California Code of Regulations, Underground Storage Tank Act. The Underground Storage Tank (UST) monitoring and response program is required under

Chapter 6.7 of the H&SC and Title 23 of the CCR. The program was developed to ensure that the facilities meet regulatory requirements for design, monitoring, maintenance, and emergency response in operating or owning USTs.

Title 27 of the California Code of Regulations, Solid Waste. Title 27 of the CCR contains a waste classification system that applies to solid wastes that cannot be discharged directly or indirectly to waters of the state and which therefore must be discharged to waste management sites for treatment, storage, or disposal. The Local Enforcement Agency (LEA) regulates the operation, inspection, permitting and oversight of maintenance activities at active and closed solid waste management sites and operations.

California Health and Safety Code Section 25270 etc., Aboveground Petroleum Storage Act. The Aboveground Petroleum Storage Act requires registration and spill prevention programs for above ground storage tanks (ASTs) that store petroleum. In some cases, ASTs for petroleum may be subject to groundwater monitoring programs that are implemented by the Regional Water Quality Control Boards and the State Water Board.

California Human Health Screening Levels. The California Human Health Screening Levels (CHHSLs or "Chisels") are concentrations of 54 hazardous chemicals in soil or soil gas that the California EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment on behalf of the California EPA. The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by the EPA and the California EPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most circumstances, the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSL can be assumed to not pose a significant health risk to people who may live or work at the site. There are separate CHHSLs for residential and commercial/ industrial sites.

SB 1889, Accidental Release Prevention Law/California Accidental Release Prevention Program. SB 1889 required California to implement a new federally mandated program governing the accidental airborne release of chemicals promulgated under section 112 of the Clean Air Act. Effective January 1, 1997, CalARP replaced the previous California Risk Management and Prevention Program and incorporated the mandatory federal requirements. CalARP addresses facilities that contain specified hazardous materials, known as "regulated substances" that, if involved in an accidental release, could result in adverse off-site consequences. CalARP defines regulated substances as chemicals that pose a threat to public health and safety or the environment because they are highly toxic, flammable, or explosive.

Emergency Response to Hazardous Materials Incidents. California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government, and private agencies. The plan is administered by the California Emergency Management Agency (Cal EMA) and includes response to hazardous materials incidents. Cal EMA coordinates the response of other agencies, including the California EPA, California Highway Patrol, California Department of Fish and Game, Regional Water Quality Control Board, San Diego Air Pollution Control District, the City of San Diego Fire Department, and DEH-Hazardous Incident Response Team.

California Fire Code. The California Fire Code (CFC) is Chapter 9 of Title 24 of the California Code of Regulations. It is created by the California Building Standards Commission and it is based on the International Fire Code created by the International Code Council. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code (CBC) use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every three years.

California Education Code. The California Education Code (CEC) establishes the law for California public education. CEC requires that the DTSC be involved in the environmental review process for the proposed acquisition and/or construction of school properties that will use state funding. The CEC requires a Phase I Environmental Site Assessment be completed prior to acquiring a school site or engaging in a construction project. Depending on the outcome of the Phase 1 Environmental Site Assessment, a Preliminary Environmental Assessment and remediation may be required. The CEC also requires potential, future school sites that are proposed within two miles of an airport to be reviewed by Caltrans Division of Aeronautics. If Caltrans does not support the proposed site, no state or local funds can be used to acquire the site or construct the school.

California State Aeronautics Act. The California State Aeronautics Act is implemented by Caltrans Division of Aeronautics. The purpose of this Act is to: 1) foster and promote safety in aeronautics, 2) ensure states provide laws and regulations relating to aeronautics are consistent with federal aeronautics laws and regulations, 3) assure that persons residing in the vicinity of airports are protected against intrusions by unreasonable levels of aircraft noise, and 4) develop informational programs to increase the understanding of current air transportation issues. Caltrans Division of Aeronautics issues permits for and annually inspects hospital heliports and public-use airports, makes recommendations regarding

proposed school sites within two miles of an airport runway, and authorizes helicopter landing sites at/near schools.

State Fire Regulations. State fire regulations are set forth in sections 13000 et seq. of the California H&SC, which include regulations concerning building standards (as also set forth in the CBC), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. The state Fire Marshal enforces these regulations and building standards in all state-owned buildings, state-occupied buildings, and state institutions throughout California.

California Emergency Services Act. This Act was adopted to establish the state's roles and responsibilities during human-made or natural emergencies that result in conditions of disaster and/or extreme peril to life, property, or the resources of the state. This Act is intended to protect health and safety by preserving the lives and property of the people of the state.

California Natural Disaster Assistance Act. The Natural Disaster Assistance Act (NDAA) provides financial aid to local agencies to assist in the permanent restoration of public real property, other than facilities used solely for recreational purposes, when such real property has been damaged or destroyed by a natural disaster. The NDAA is activated after the following occurs: 1) a local declaration of emergency; or 2) Cal EMA gives concurrence with the local declaration, or the Governor issues a Proclamation of a State Emergency. Once the NDAA is activated, local government is eligible for certain types of assistance, depending upon the specific declaration or proclamation issued.

5.10.8.3 Methodology

As part of the Convair Lagoon Alternative, an HHMTR was prepared by Ninyo and Moore in May 2011. This report is included as Appendix M to this EIR. The purpose of the HHMTR was to document possible environmental impacts at the Convair Lagoon Alternative site from potential releases of hazardous materials or wastes during construction activities, to document the significance of impacts, and to identify measures that could be implemented to reduce or mitigate the potential impacts. As part of the HHMTR, a site reconnaissance was performed and a review of physical setting information (e.g., topographic, geologic maps, groundwater data) pertaining to the site area was performed. Federal, state, and local on-line regulatory agency databases and lists for the site area were also reviewed. Available maps, reports, and other hazards and hazardous materials documents pertaining to the site area, including, but not limited to, CAOs, WDRs, and technical reports prepared by others were also reviewed. The locations of current and proposed schools, based on review of available maps and/or consultation with the applicable public school district were also documented. Finally,

within the HHMTR, potential impacts to sensitive receptors (e.g., schools, hospitals) from exposure to hazardous materials associated with the site were evaluated.

5.10.8.4 Thresholds of Significance

Threshold 5.10.8.1: Transport, Use and Disposal of Hazardous Materials. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Threshold 5.10.8.2: Accidental Release of Hazardous Materials. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it 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.

Threshold 5.10.8.3: Hazards to Schools. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Threshold 5.10.8.4: Existing Hazardous Materials Site. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would result in human habitation or occupation on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (Cortese List) and, as a result, would create a significant hazard to the public or the environment.

Threshold 5.10.8.5: Public and Private Airports. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant impact if it would locate development within two miles of a public or private airport, and would result in a safety hazard for people residing or working in the project area.

Threshold 5.10.8.6: Emergency Response and Evacuation Plans. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Threshold 5.10.8.7: Wildland Fires. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would 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.

5.10.8.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.8.3: Hazards to Schools. As part of the HHMTR, the locations of sensitive receptors for hazardous materials impacts, such as schools and hospitals, were documented. Based upon a review of background information, including the DTSC Envirostor online database, Thomas Brothers Guide maps, topographic maps, and online resources, the HHMTR determined that no sensitive receptors, including hospitals, schools, daycare, and education-related facilities, are within 0.8-mile of the Convair Lagoon Alternative site. Therefore, the Convair Lagoon Alternative would result in a less than significant impact to schools because no school facilities are located within one-quarter mile of the Convair Lagoon Alternative site. Refer to Section 4.3, Hazards and Hazardous Materials of this EIR for impacts related to hazards to schools from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.5: Public and Private Airports. The San Diego International Airport (SDIA) is located immediately north of the Convair Lagoon site. The Naval Air Station North Island (NASNI) is located in the city of Coronado, south of the Convair Lagoon Site. The San Diego International Airport covers 661 acres and consists of a single, 9,401 foot-long 200-foot wide east-west runway, two main terminals and a commuter terminal. The Convair Lagoon site is within the SDIA Airport Influence Area as shown in the 2004 SDIA ALUCP (SDCRAA, 2004). The SDIA Airport Influence Area encompasses those areas adjacent to airports that could be impacted by noise levels exceeding the California State Noise Standards or where height restrictions would be needed to prevent obstructions to navigable airspace, as outlined in FAA regulations. An ALUCP for NASNI has not yet been adopted and is pending the adoption of updated AICUZs from the Department of Defense (SDCRAA, 2010c). NASNI operates a mixture of jet fighter, transport, and helicopter aircraft.

Title 14 of the Code of Federal Regulations Part 77, Objects Affecting Navigable Airspace, establishes imaginary surfaces for airports and runways as a means to identify objects that are obstructions to air navigation. The Federal Aviation Administration (FAA) uses Part 77 and Terminal Instrument Procedures (TERPS) obstruction standards as elevations above which structures may constitute a safety problem. The Part 77 regulations require that anyone proposing to construct or use an object, which could affect the navigable airspace around an airport using the Part 77 notification criteria as shown in Table 5-33, submit information about the proposed construction to the FAA. Of the criteria listed in Table 5-33, proposed projects that exceed an imaginary 100:1 surface within 20,000 feet of a civilian or military airport or have a height exceeding 200 feet above ground level are two of the more typical

notification criteria that require project applicants to notify the FAA. Any proposed project having a height exceeding 200 feet above ground level at any location is required to notify the FAA.

Table 5-33: Summary of the Part 77 Notification Criteria

• Any construction or alteration exceeding 200 ft above ground level.
• Any construction or alteration: a) within 20,000 ft 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 ft. b) within 10,000 ft of public use of 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 ft. c) within 5,000 ft of a public use heliport which exceeds a 25:1 surfaces.
• Any highway, railroad or other traverse way whose prescribed adjusted height would exceed that above noted standards.
• When requested by the FAA.
• Any construction or alteration located on public use airport or heliport, regardless of height or location.

When notified, the FAA then conducts an aeronautical study, the outcome of which is a determination as to whether the object would be a potential hazard to air navigation. The FAA examines the Terminal Instrument Procedures Tool surfaces for obstructions and safety issues as part of the obstruction evaluation for a proposed project. If the proposed object is concluded to pose a hazard, the FAA may object to its construction and issue a determination of a hazard to air navigation, examine possible revisions of the proposal to eliminate the problem, require that the project be appropriately marked and lighted as an airspace obstruction, and/or initiate changes to the aircraft flight procedures for the airport so as to account for the object (CSD, 2007).

Construction of the Convair Lagoon Alternative would involve the use of cranes, although none of these cranes are anticipated to be over 200 feet in height. In the event a crane over 200 feet in height would be used during construction, this would trigger the FAA Notification process under Title 14 of the Code of Federal Regulations Part 77 for both the SDIA and the NASNI. Compliance with this notification process would mitigate any potential impacts to SDIA and NASNI from the use of cranes during construction activities associated with the Convair Lagoon Alternative. Upon completion of construction, all cranes would be removed from the area and the site would be converted to an undeveloped, above ground parcel of land with no structures. No development would be located on the site and operation of the Convair Lagoon Alternative would not result in any safety hazards for people residing or working in the area from SDIA or NASNI. Impacts would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to hazards to public and private airports from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.6: Emergency Response and Evacuation Plans. Interference with an adopted emergency response or evacuation plan would result in an adverse physical effect to people or the environment by potentially increasing the loss of life and property in the event of a disaster. The Convair Lagoon Alternative site is not part of a public emergency response or evacuation plan adopted by the San Diego Unified Port District (District) or City of San Diego. Therefore, the Convair Lagoon Alternative would not impair implementation of, or physically interfere with, the implementation of any plan, and would therefore not result in a significant impact. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to emergency response and evacuation plans from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.7: Wildland Fires. The Convair Lagoon Alternative site is situated in an urban area and is not located within or adjacent to designated wildlands, nor is it within or near the wildland urban interface areas. The Convair Lagoon Alternative site is not located in a community considered at risk from wildfire and is mapped as a Non-Very High Fire Hazard Severity Zone by Cal Fire (Cal Fire, 2010). Therefore, the Convair Lagoon Alternative would not result in a significant impact from a potential wildland fire hazard.

Potentially Significant Impacts

Threshold 5.10.8.1: Transport, Use and Disposal of Hazardous Materials. The construction of the Convair Lagoon Alternative would result in the transportation, use and disposal of hazardous materials. In addition, the Convair Lagoon Alternative site is the location of a former PCB contamination area that has been capped. However, since that cap was installed PCB contamination has been discovered in sediments above the cap.
The PCB contamination that has been discovered above the cap is the subject to CAO R9-2004-0258, as amended. The CAO states that there are three areas of concern with regard to the transport of wastes from the TDY facility to Convair Lagoon: 1) Convair Lagoon shoreline groundwater, 2) sediment in the storm water conveyance system that empties into Convair Lagoon/San Diego Bay, and 3) VOC-impacted groundwater seeping into the 54-inch and 60-inch storm drains. Although the CAO states that sediment transport to the lagoon is a concern, the storm drain inlets and laterals on the TDY facility were capped with concrete; therefore, no additional input of sediment to the storm water conveyance system from the TDY facility is known to be occurring. However, there is the potential for PCB impacted sediments to be transported to Convair Lagoon from sites up gradient of the TDY facility, which continue to discharge into the storm water conveyance system. There is a potential risk to human health associated with the incidental ingestion of or contact with the sediments in the lagoon. The CAO requires that soil and groundwater contamination at the TDY facility be remediated to the identified clean up levels, visible sediment should be removed from within the 60-inch storm drain and associated energy dissipater, and a remedial action plan be submitted to detail how the cleanup levels will be achieved. The San Diego Water Board is responsible for ensuring that the remediation is performed in accordance with the requirements of this CAO. As discussed above, as required by the CAO issued by the San

Diego Water Board for the TDY facility, numerous investigations have been performed to evaluate impacted soil and groundwater, potential remedial alternatives, and potential sources of PCBs in the storm water conveyance system. The potential sources of PCBs in the storm water conveyance system have been identified as on-site and off-site soil, groundwater, sediment, building materials, and rainfall. Specific sites up gradient of TDY have not been identified as sources of PCBs in the storm water conveyance system.

A Remedial Investigation Feasibility Study (RI/FS) was prepared by the San Diego Water Board, which states that the recommended remedial action for addressing PCB impacted sediments in the 60-inch storm water conveyance system is to clean out sediments and remove the storm water conveyance system laterals on the site after the existing TDY site buildings (a potential source of PCBs) have been removed. The RI/FS also states that the recommended remedial action for PCB impacts to groundwater at the TDY site is to continue groundwater monitoring under the supervision of the San Diego Water Board to confirm that PCB impacted groundwater is not migrating into Convair Lagoon at levels that exceed existing regulatory limits. The San Diego Water Board will be responsible for ensuring that the remediation of the TDY facility is performed in accordance with the requirements of the applicable CAOs.

A feature of the Convair Lagoon Alternative is that this PCB contamination would be resolved to the satisfaction of the State Water Board before construction of this alternative would occur.

The placement of contaminated dredged material from the Shipyard Sediment Site into the Convair Lagoon would involve the transportation of contaminated, hazardous materials across San Diego Bay by barge, a distance of approximately 4.5 miles. The approximate barge route for the Convair Lagoon Alternative is identified in Figure 5-2 and would begin at the Shipyard Sediment Site, near the 28th Street Pier and travel north within the San Diego Bay Channel to the Convair Lagoon Alternative Site. Transportation of the dredged sediment to either the Convair Lagoon Alternative Site or staging areas would require a total of approximately 116 barge trips, using barges with an average holding capacity of 1,250 cubic yards. During Phase 4 of the CDF construction, it is assumed that a maximum of four tug boats and barges would be required per day and that each of the tug boats would be operating for eight hours per day. Therefore, construction of the Convair Lagoon Alternative would involve the transportation and use of hazardous materials.

Additionally, the Convair Lagoon Alternative site currently includes an approximately 7-acre sand cap that covers areas within the site where sediments contained high PCBs concentrations. The most recent groundwater monitoring report (2010) for the Convair Lagoon Site, required by CAO R9-2004-0258, found low levels of VOCs and trace levels of PCBs on the top of the existing 7-acre sand cap, attributed to an existing 60" storm drain that outlets on the site. Construction of the Convair Lagoon Alternative site would require the excavation of existing sediment in the area proposed for the containment barrier. Due to the location of the proposed containment barrier, south of the existing sand cap, any existing PCB concentrations in the area of excavation would be lower than those found on top of the

existing cap. Therefore, the on-site material excavated for construction of the containment barrier is unlikely to have high contamination levels and would be reused on site as fill, assuming the contamination levels would not exceed those allowed by the State Water Board for this alternative. In the event excavated sediments were found to not qualify for on-site reuse, then these excavated sediments would require disposal at an appropriate off-site facility. Additional use of hazardous materials on site includes construction equipment that involves the use of oils and hydrocarbons, which are considered hazardous materials.

Construction and operation of the Convair Lagoon Alternative would comply with the numerous federal, state and local regulations described above in the Regulatory Setting subsection that require strict adherence to specific guidelines regarding the use, transportation, and disposal of hazardous materials. Regulations that would be required of those transporting, using or disposing of hazardous materials include RCRA, which provides the 'cradle to grave' regulation of hazardous wastes; CERCLA, which regulates closed and abandoned hazardous waste sites; the Hazardous Materials Transportation Act, which governs hazardous materials transportation on U.S. roadways; IFC, which creates procedures and mechanisms to ensure the safe handling and storage of hazardous materials; Title 22, which regulates the generation, transportation, treatment, storage and disposal of hazardous waste; CCR Title 27, which regulates the treatment, storage and disposal of solid wastes; the County Consolidated Fire Code, which regulates hazardous materials and hazardous substance releases; and the County of San Diego DEH-HMD, which conducts ongoing routine inspections to ensure compliance with existing laws and regulations. Further, this EIR which addresses the Shipyard Sediment Site project contains detailed mitigation measures related to the transportation, use and disposal of contaminated dredged sediment. The Convair Lagoon Alternative would comply with these measures.

Compliance with the applicable federal, state and local regulations and implementation of mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Therefore, impacts related to the transport use and disposal of hazardous materials would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to hazardous material use, transport and disposal from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.2: Accidental Release of Hazardous Materials. As described above, implementation of the Convair Lagoon Alternative would result in the transportation and use of contaminated dredge material from the Shipyard Sediment Site. Additionally, the existing Convair Lagoon Site would include excavation activities within the Convair Lagoon Site, which has documented existing hazardous material contamination. Although construction activities involve strict regulations regarding monitoring and handling, accidental release of hazardous materials due to natural disasters, human error or misuse is possible. For example,

contaminated sediments on the Convair Lagoon site and contaminated sediments from the Shipyard Site may be disturbed during construction activities. Sediments could be disturbed during storm drain extensions construction, sediment stockpiling, containment barrier rock placement, barge transportation and placement of sediment. Sediments transported by barge to the Convair Lagoon Alternative Site could accidently be released into the bay by wind or an unanticipated spill. Disturbance of the sediments from excavation activities within the Convair Lagoon and placement of Shipyard Sediments into the Convair Lagoon could cause a release of the contaminants that may result in an impact to human health and the environment. Additionally, demolition and construction equipment could spill/leak fuels, oils, or other hazardous fluids during normal operations, refueling, or maintenance. However, any leaks/spills that occur would likely be localized, short-term, and cleaned up immediately in accordance with existing regulations, such as the Code of Federal Regulations Title 40, California Code of Regulations Title 22.

Numerous federal, state, and local regulations exist that reduce the potential for humans or the environment to be affected by an accidental release of hazardous materials. These include, but are not limited to, the following: 1) Chemical Accident Prevention Provision, which requires companies that use certain hazardous materials to develop a Risk Management Program; 2) RCRA, which requires infrastructure at the state and local levels to plan for chemical emergencies; 3) Robert T. Stafford Disaster Relief and Emergency Assistance Act, which provides the statutory framework for a Presidential declaration of an emergency or major disaster; 4) California H&SC, which provides threshold quantities for regulated hazardous substances and the establishment of Hazardous Materials Release Response Plans; 5) CCR Title 23, which ensures that facilities meet regulatory requirements for underground storage tanks ; 6) Aboveground Petroleum Storage Act, which requires registration and spill prevention programs for ASTs; 7) CalARP, which governs the accidental airborne release of chemicals; 8) Emergency Response to Hazardous Materials Incidents; which provides coordination between federal, state, local government, and private agencies in the event of an emergency; and 9) California Emergency Services Act, which establishes the state's role during natural or man-made emergencies. As mentioned above, the DEH-HMD also conducts ongoing routine inspections to ensure compliance with existing laws and regulations; to identify safety hazards that could cause or contribute to an accidental spill or release; and to suggest preventative measures to minimize the risk of a spill or release of hazardous substances. Further, the EIR for the Shipyard Sediment Site project contains detailed mitigation measures related to the accidental release of hazardous materials. The Convair Lagoon Alternative would comply with these measures.

Compliance with the applicable federal, state and local regulations and implementation of the mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a significant hazard to the public or the environment through the accidental release of hazardous materials. Therefore, impacts would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to an accidental release of hazardous materials from dredging and dewatering activities at the Shipyard Sediment Site.

Threshold 5.10.8.4: Existing Hazardous Materials Sites. Typical adverse effects related to existing contamination from hazardous substances relate to the potential for site conditions or site contamination to result in adverse human or environmental effects. As discussed above, the Convair Lagoon site is subject to San Diego Water Board WDR Order No. 98-21, CAO 86-92 and CAO R9-2004-0258 due to past and existing hazardous materials contamination on the site. Therefore, the existing site for the Convair Lagoon Alternative is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (Cortese List). Additionally, as part of the Convair Lagoon Alternative, dredged contaminated sediment from the Shipyard Sediment Site would be placed within the lagoon as fill. The Shipyard Sediment Site is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5.

Sediments at the Convair Lagoon site and the dredged sediments from the Shipyard Sediment Site are documented to contain levels of hazardous contaminants above regulatory limits. Both the Convair Lagoon and Shipyard Sediment Site contaminated sediments are submerged within the San Diego Bay and completely saturated. Therefore, sediment contamination affects both the sediment particles and associated water. Contaminated sediments on the Convair Lagoon site and contaminated sediments from the Shipyard Sediment Site may be disturbed during construction activities. Sediments could be disturbed during storm drain extensions construction, sediment stockpiling, containment barrier rock placement, transportation by barge, or during placement. Disturbance of the sediments from excavation activities within the Convair Lagoon and placement of Shipyard Sediments into the Convair Lagoon could cause a release of the contaminants that may result into an impact to human health and the environment.

For example, as the dredged sediment from the Shipyard Sediment Site is placed into the Convair Lagoon Alternative site, some of the sediments will be suspended in the bay water and may flow back into the bay. However, the placement of dredged contaminated sediment would not take place until after the containment barrier is constructed. Additionally, the placement of dredged materials within the Convair Lagoon site would occur at a pace that would allow displaced water to flow through the containment barrier prior to entering San Diego Bay. The containment barrier rock and filter within the barrier would act as a filter to minimize sediment particles from leaving the site (SAIC, 2009). The controlled placement of the dredged material and the installation of the containment barrier would prevent any significant impacts from suspended sediments flowing back into the bay.

In addition, the Convair Lagoon Alternative site is currently subject to CAO R9-2004-0258 to address newly discovered PCB contamination above a cap which covers prior PCB contamination. Therefore, the Convair Lagoon Alternative would use a site that is currently contaminated with a hazardous material. However, this existing contamination is being addressed through CAO R9-2004-0258, as amended, and must be resolved before the Convair Lagoon Alternative could be implemented. The San Diego Water Board is responsible for ensuring that the remediation is performed in accordance with the requirements of this CAO. Upon completion of the Convair Lagoon Alternative, the San

Diego Water Board would be responsible for ensuring that the remediation technique performs in accordance with the requirements of the agency.

Multiple federal and state regulations exist that prevent or reduce hazards to the public and environment from existing hazardous materials sites. These include, but are not limited to, the following: 1) CERCLA, which regulates closed and abandoned hazardous waste sites; 2) PRGs, which establishes tools for evaluating and cleaning up contaminated sites; 3) Cortese List, which provides information about the location of hazardous materials release sites; and 4) CHHSLs, which evaluates sites with potential human health concerns. The San Diego County SAM Program, within the Land and Water Quality Division of the DEH, maintains a list of contaminated sites that have previously or are currently undergoing environmental investigations and/or remedial actions. In addition, the RWQCB may issue a CAO and WDRs specific to the site that may specify land use restrictions/activity and use limitation to minimize future disturbance of the sediments within the CDF. Further, the EIR for the Shipyard Sediment Site project contains detailed mitigation measures related to existing hazardous material contamination. The Convair Lagoon Alternative is required to comply with these measures.

Compliance with the applicable federal, state and local regulations and implementation of the Mitigation Measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a significant hazard to the public or the environment due to the presence of hazardous materials on site. Therefore, impacts would be less than significant. Refer to Section 4.3, Hazards and Hazardous Materials, of this EIR for impacts related to existing hazardous material sites from dredging and dewatering activities at the Shipyard Sediment Site.

Mitigation Measures

The Convair Lagoon Alternative is required to implement Mitigation Measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR, Section 4.3, Hazards and Hazardous Materials. These measures require the implementation of: secondary containment, a dredging management plan, a contingency plan, a health and safety plan, a communication plan, a sediment management plan, and a hazardous materials transportation plan and traffic control plan.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for hazards and hazardous materials varies depending on the type of hazard that could occur. The geographic scope for each of the seven hazards and hazardous material topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.8.1: Transportation, Use and Disposal of Hazardous Materials. The geographic scope of cumulative impact analysis for the transportation, use and disposal of hazardous materials includes the primary transportation corridors for the transportation, use and disposal of contaminated sediment. Primary transportation corridors include: 1) Interstate 5, from San Diego to the Kettleman Hills Disposal Facility in Kings County for truck traffic; and 2) Portions of the San Diego Bay between the Shipyard Sediment Site and the Convair Lagoon Alternative site for barge transport (see Figure 5-2). The transportation, use and disposal of hazardous materials would occur only during construction of the Convair Lagoon Alternative and is limited to water impacts from the transportation of dredged sediment from the Shipyard Sediment site to the Convair Lagoon Alternative site for placement; and land impacts from the transportation of approximately 21,510 cy of contaminated sediment from the Shipyard Sediment Site to the Kettleman Hills Disposal Facility for disposal. No routine transport, use or disposal of hazardous materials would occur during operation of the alternative because the Convair Lagoon Alternative is a construction project with no operational features.

Cumulative projects within the geographic scope of analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, are likely to result in new development which would include land facilities that involve the use, storage, disposal or transport of hazardous materials, and potentially increase hazards to the public or the environment. For example, the cumulative project West Side – Airport Facilities Project 6, would include a utility expansion and the construction of a co-generation facility, which would require the use and transportation of hazardous materials. However, unlike the Convair Lagoon Alternative, cumulative projects would only involve the transportation, use and disposal of hazardous materials on land and no transportation or use of hazardous materials on water would occur. Therefore, cumulative projects would have the potential to result in a significant cumulative impact from the use, transportation and disposal of hazardous materials on land but cumulative projects do not include features that involve the transport of hazardous materials on water and therefore a significant cumulative impact to water from the use, transportation and disposal of hazardous material within the bay would not occur. Similar to the Convair Lagoon Alternative, cumulative projects would be required to comply with regulations applicable to the use, disposal and transportation of hazardous materials on land, including RCRA, CERCLA, the Hazardous Materials Transportation Act, IFC, and CCRs Title 22 and Title 27. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations for hazardous materials. In addition, the implementation of mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the direct impacts of the Convair Lagoon Alternative to a less than significant impact. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to hazardous material use, disposal and transportation.

Threshold 5.10.8.2: Accidental Release of Hazardous Materials. The geographic scope of cumulative impact analysis for the accidental release of hazardous materials includes the primary transportation corridors for the disposal and use of contaminated sediment, which could be impacted in the event of an accidental release of contaminated sediment. Primary transportation corridors include: 1) Land areas along Interstate 5, from San Diego to the Kettleman Hills Disposal Facility in Kings County for truck traffic; and 2) Water areas of the San Diego Bay between the Shipyard Sediment Site and the Convair Lagoon Alternative site for barge transport (see Figure 5-2). The implementation of various cumulative projects, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would increase the likelihood of hazards to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. However, unlike the Convair Lagoon Alternative, cumulative projects would most likely only involve the transportation, use and disposal of hazardous materials on land and no transportation or use of hazardous materials within water would occur. Cumulative projects would be subject to regulations regarding the handling of hazardous materials, such as Chemical Accident Prevention Provision, RCRA, Robert T. Stafford Disaster Relief and Emergency Assistance Act, California H&SC, CCR Title 23, Aboveground Petroleum Storage Act, CalARP, Emergency Response to Hazardous Materials Incidents, and the California Emergency Services Act. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations for hazardous materials. In addition, implementation of mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the direct impacts of the Convair Lagoon Alternative to less than significant. Therefore, the Convair Lagoon Alternative would not result in a significant cumulative impact related to the accidental release of hazardous materials.

Threshold 5.10.8.3: Hazards to Schools. The geographic scope of cumulative impact analysis for hazards to schools includes a 1-mile radius immediately surrounding the Convair Lagoon Alternative site. This area is composed of a highly developed, industrial area containing many companies that regularly use and transport hazardous materials. Cumulative projects within the geographic scope of analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, that emit or handle hazardous waste materials have the potential to be located adjacent to schools. However, cumulative projects would be subject to CEQA/NEPA review and CEC requirements. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations. Furthermore, since no schools are located within a ¼-mile of the Convair Lagoon Alternative site, the proposed project would not cause or contribute to a cumulative impact relating to hazards to schools.

Threshold 5.10.8.4: Existing Hazardous Materials Site. The geographic scope of cumulative impact analysis for existing hazardous materials sites includes a 1-mile radius immediately surrounding the Convair Lagoon Alternative site. This area encompasses a highly developed, industrial area with many companies that regularly use hazardous materials. As discussed in the existing environmental setting, four adjacent properties to the Convair Lagoon site have experienced existing or past hazardous materials contamination. Therefore, it is reasonable to assume that some cumulative project sites in the geographic scope of analysis, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would also have existing hazardous materials contamination, pursuant to Government Code section 65962.5. For example, the Teledyne Ryan Demolition Project occurs on an identified hazardous material site and involves the removal and disposal of these hazardous and contaminated materials. All cumulative projects would be required to comply with applicable federal, state and local regulations, which would ensure that a significant cumulative impact would not occur. As discussed above, the Convair Lagoon Alternative site is currently subject to CAO R9-2004-0258, as amended, and is considered a site that is currently contaminated with a hazardous material. This existing contamination must be resolved before the alternative could be implemented. Compliance with the applicable federal, state and local regulations and implementation of the mitigation measures 4.3.1 through 4.3.8, listed in the Shipyard Sediment Site EIR Hazards and Hazardous Materials Section 4.3, would reduce the potential for the Convair Lagoon to create a direct significant hazard to the public or the environment due to the presence of hazardous materials on site. Therefore, the Convair Lagoon Alternative would not cause or contribute to a cumulative impact relating to existing hazardous material contamination.

Threshold 5.10.8.5: Airports. The geographic scope of cumulative impact analysis for airports includes the Airport Influence Area for SDIA and NASNI. Cumulative projects in the area, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would potentially result in incompatible land uses within the vicinity of SDIA and NASNI, which could result in a potentially significant safety hazard for people residing or working in these areas. However, cumulative projects would be subject to safety regulations, such as ALUCPs, FAA standards and the State Aeronautics Act. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations pertaining to this topic.

Construction of the Convair Lagoon Alternative would involve the use of cranes, although none of these cranes are anticipated to be over 200 feet in height. In the event a crane over 200 feet in height would be used during construction, this would trigger the FAA Notification process under Title 14 of the Code of Federal Regulations Part 77 for both the SDIA and the NASNI. Compliance with this notification process would mitigate any potential impacts to SDIA and NASNI from the use of cranes during construction activities associated with the Convair Lagoon Alternative. Upon completion of construction, all cranes would be removed from the area and the site would be converted to an undeveloped, above ground parcel of land with no structures. No development would be located on the site and

operation of the Convair Lagoon Alternative would not result in any safety hazards for people residing or working in the area from SDIA or NASNI. As a result, the proposed project would not cause or contribute to a cumulative impact relating to airport hazards.

Threshold 5.10.8.6: Emergency Response Plans and Routes. The geographic scope of cumulative impact analysis for emergency response plans and routes includes the city of San Diego and lands under the jurisdiction of the District. Cumulative projects, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, would have the potential to impair existing emergency and evacuation plans. This could occur from an increase in population that emergency response teams are unable to service adequately in the event of a disaster; or evacuation route impairment if cumulative projects block evacuation or access roads. However, cumulative projects would be required to comply with applicable emergency response and evacuation policies outlined in regulations such as the Federal Response Plan, the California Emergency Services Act, and local fire codes. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Refer to the Regulatory Setting section above for additional information regarding existing federal and state regulations pertaining to this topic. The Convair Lagoon Alternative site is not part of a public emergency response or evacuation plan adopted by the District or City of San Diego. Therefore, the Convair Lagoon Alternative would not impair implementation of, or physically interfere with, the implementation of any plan, and would therefore not cause or contribute to a cumulative impact relating to emergency response plans and routes.

Threshold 5.10.8.7: Wildland Fire Hazards. The geographic scope of the cumulative impact analysis for wildland fire hazards includes the city of San Diego and lands under the jurisdiction of the District.

Some areas of southern California have a history of frequent and intensive wildland fires, which have exposed people and structures to a potentially significant loss of life and property. Cumulative projects, identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon Alternative, within the geographic scope of analysis are located in developed areas with minimal potential for wildfires to occur and these areas are not located within wildland urban interface areas mapped by the California Department of Forestry and Fire Protection. Additionally, regulations exist to reduce hazards associated with wildland fires, which would further reduce cumulative project risk to below a level of significance. Since the Convair Lagoon Alternative site is situated in an urban area and is not located within or adjacent to designated wildlands, nor is it within or near the wildland urban interface areas, it would therefore not cause or contribute to a cumulative impact relating to wildland fire hazards.

Level of Significance After Mitigation

Upon implementation of mitigation measures 4.3.1 through 4.3.8, identified in the EIR Section 4.3, Hazards and Hazardous Materials, for the Shipyard Sediment Site, all Convair Lagoon Alternative impacts related to hazards and hazardous materials would be reduced to a level below significance.

Significant Unavoidable Adverse Impacts

No significant and unavoidable impacts related to hazards and hazardous materials would occur from implementation of the Convair Lagoon Alternative.

5.10.9 Hydrology and Water Quality

This section describes the existing hydrology and water quality on the Convair Lagoon site and analyzes the potential physical environmental effects of the Convair Lagoon Alternative related to surface water quality, groundwater, drainage and flooding. Information pertaining to water quality and hydrology is based on: the *Water Quality Technical Study for the Shipyard Sediment Alternative Analysis Convair Lagoon*, prepared by Ninyo and Moore in May 2011, and included as Appendix O of this EIR; the *San Diego Bay Integrated Natural Resources Management Plan* (U.S. Navy, 2007); and the *San Diego Regional Water Quality Control Board* (San Diego Water Board) *Water Quality Control Plan* (Basin Plan) *for the San Diego Basin* (SDRWQCB, 1994). This analysis hereby incorporates by reference the *San Diego Bay Integrated Natural Resources Management Plan* and the San Diego Water Board Basin Plan. The *San Diego Bay Integrated Natural Resources Management Plan* can be found online at http://sdbayinrmp.org/, while the San Diego Water Board Basin Plan can be found online at http://www.swrcb.ca.gov/sandiego/water_issues/programs/basin_plan/.

5.10.9.1 Existing Environmental Setting

Hydrologic Unit. The Convair Lagoon site is located in the Pueblo San Diego Hydrologic Unit of the San Diego Bay watershed. The San Diego Bay watershed encompasses a 415 square mile area that extends easterly from the San Diego Bay for more than 50 miles to the Laguna Mountains. The watershed elevation ranges from sea level, at San Diego Bay, to a maximum elevation of approximately 6,000 feet above sea level at its eastern boundary. The headwaters of the watershed begin in the eastern, unincorporated area of San Diego County and then transect all or portions of seven cities, including San Diego, National City, Chula Vista, Imperial Beach, Coronado, Lemon Grove, and La Mesa. The San Diego Bay watershed is included within three hydrologic units: the Pueblo San Diego Hydrologic Unit, the Sweetwater Hydrologic Unit, and the Otay Hydrologic Unit.

The Pueblo San Diego Hydrologic Unit is a triangular shaped area of approximately 60 square miles without a major stream system. The Pueblo San Diego Hydrologic Unit is the smallest of the three San Diego Bay Hydrologic Units and covers just over 36,000 acres.

Major water features include Switzer Creek, Chollas Creek, Paleta Creek, and San Diego Bay. The Pueblo San Diego Hydrologic Unit is the most developed and most densely populated hydrologic unit in the San Diego Bay watershed. The major population center in the hydrologic unit is the city of San Diego.

Surface Water Quality. The Convair Lagoon Alternative site is located within San Diego Bay. Present day water quality concerns for the San Diego Bay focus mainly on the quantities of contaminants found in the water, sediments, and biota (such as shellfish, and other marine organisms). The entire San Diego Bay is listed as an impaired water body (under Clean Water Act (CWA) section 303[d]) by the California State Water Resources Control Board (State Water Board) due to benthic community degradation and toxicity. Sources that may be contributing pollutants to the bay's environment include surface runoff from urban watersheds, industrial facilities, vessel activities from recreational marinas and commercial ports, aerial deposition, hazardous material spills, storm drains, and sewage spills. With the long history of industrial, marina, and military use of the bay, "legacy" pollutants continue to remain from past practices despite curtailment of new discharges. Surface runoff is considered the largest source of pollutants in the region, contributing more heavy metals than all other sources combined to the bay. In addition to chemical and bacterial pollution, debris from human activities (such as plastic, metal materials, bottles, and cans) is also common in the bay and harbors.

Within the San Diego Basin Plan, the San Diego Bay has been assigned beneficial uses for industrial service supply, navigation, contact and non-contact water recreation, commercial and sport fishing, preservation of biological habitats of special significance, estuarine habitat, wildlife habitat, rare/threatened/endangered species, marine habitat, migration of aquatic organisms, spawning/reproduction/early development and shellfish harvesting.

Groundwater. The Convair Lagoon Alternative site is located within the Mission Valley Groundwater Basin. Depth to groundwater on the Convair Lagoon Alternative site generally ranges from 6 to 11 feet below ground surface and generally flows south toward the bay. According to the Basin Plan, groundwater in the area of Convair Lagoon has been exempted from municipal supply and does not currently have existing or potential beneficial uses. Currently, there are eight groundwater monitoring wells located on the landside portion of the Convair Lagoon Alternative site to monitor contamination from former Teledyne-Ryan operations.

Topography. The landside portion of the Convair Lagoon Alternative site varies in elevation from approximately 10 to 14 feet above sea level (mean lower low water), while the lagoon floor elevation varies from sea level to approximately -15 feet below sea level. Figure 5-13 illustrates the existing lagoon floor topography.

5.10.9.2 Regulatory Setting

Federal

Clean Water Act. The 1972 CWA was designed to restore and maintain the chemical, physical, and biological integrity of the waters of the U.S. The CWA also directs states to establish water quality standards for all waters of the U.S. and to review and update such standards on a triennial basis. The U.S. Environmental Protection Agency (EPA) has delegated responsibility for implementation of portions of the CWA in California to the State Water Board and the Regional Water Quality Control Boards (RWQCB). This includes water quality control planning and control programs such as the National Pollutant Discharge Elimination System (NPDES), which seeks to control water pollution through the issuance of permits regulating the discharge of pollutants into waters of the U.S. Section 404 of the CWA regulates the discharge of dredged and/or fill material into the waters of the U.S., while section 401 of the CWA requires certification from the state agency that the project will comply with water quality standards. The Convair Lagoon Alternative will require both a 404 permit and a 401 permit. Section 303(d) of the CWA requires that impaired water bodies are identified and listed, after which a total maximum daily load (TMDL) must be developed for each contaminant. The Convair Lagoon site is located within the San Diego Bay, which is listed as a 303(d) impaired water body for Polychlorinated biphenyl (PCBs). A TMDL for PCBs in San Diego is projected to be completed in 2019.

National Pollutant Discharge Elimination System (NPDES) Program. The CWA section 402(p) establishes a framework for regulating municipal and storm water discharges under the NPDES program and requires that storm water associated with industrial activity that discharges directly to surface waters or discharges indirectly through storm drains must be regulated by an NPDES permit. The Convair Lagoon Alternative may be subject to two NPDES permits, as described below, or may be issued an individual permit by the San Diego Water Board.

Industrial Storm Water General Permit, Order 97-03-DWQ. This NPDES permit regulates discharges associated with ten categories of industrial activities. The permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and monitoring plan, which identifies potential sources of pollutants and the means to manage or reduce the storm water pollution from these sources, by Best Management Practices (BMPs).

Construction General Permit, Order 2009-0009-DWQ. This NPDES permit is required for construction sites with total disturbed area of one or more acres. Construction activities subject to the permit include grading, stockpiling and excavation. The permit requires a SWPPP that must include a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan, if the site discharges directly to a water body listed on the 303(d) list for sediment, such as the San Diego Bay.

Rivers and Harbors Appropriation Act. The Rivers and Harbors Appropriation Act prohibits the creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States. Under section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Army Corps of Engineers (ACOE) Chief of Engineers. ACOE concerns include contaminated sediments associated with dredge or fill projects in navigable waters. The Convair Lagoon Alternative will require a section 10 permit for construction.

State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act, enacted in 1969, authorizes the State Water Board to adopt, review, and revise policies for all waters of the state, including both surface and ground waters, and directs the RWQCBs to develop region-specific basin plans. Section 13170 of the California Water Code also authorizes the State Water Board to adopt water quality control plans on its own initiative. The purpose of these plans are to designate beneficial uses of the region's surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives.

Local

San Diego Basin Plan. The San Diego Basin Plan, most recently amended in 2007, sets forth water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water within the basin. Specifically, the Basin Plan is designed to accomplish the following: 1) designate beneficial uses for surface and ground waters, 2) set the narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy, 3) describe mitigation measures to protect the beneficial uses of all waters within the region, and 4) describe surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan. The Basin Plan incorporates by reference all applicable State Water Board and San Diego Water Board plans and policies.

Port of San Diego Jurisdictional Urban Runoff Management Program. The San Diego Unified Port District (District) Environmental Services Department has prepared a Jurisdictional Urban Runoff Management Program Document (District JURMP) for all areas under the jurisdiction of the District, in accordance with the requirements of San Diego Water Board *Order No. 2007-0001 (NPDES Permit #CAS0108758),* which serves as the District's Municipal Stormwater Permit. This document describes all the activities that the District has undertaken, is undertaking, or will undertake, to reduce discharges of pollutants and urban runoff flow to the municipal separate storm sewer system to the maximum extent

practicable. The three major phases of urban development addressed by this program are the planning, the construction, and the existing development or existing use phases.

The District JURMP has been developed to assist the District in identifying causes or contributions to water quality impacts, tracking urban runoff related activities, and to implement to the maximum extent practicable (MEP) BMPs to reduce or eliminate pollutants from reaching receiving waters within the District's jurisdiction. The JURMP was designed to be a comprehensive management program focusing several individual elements on achieving similar outcomes and objectives. The District's JURMP serves as an informational document that provides an overall account of the program to be conducted by the District during the five-year life of the Municipal Stormwater Permit.

Port of San Diego Jurisdictional Standard Urban Stormwater Mitigation Planning Document. One component of the District's JURMP is to prepare and implement a Jurisdictional Standard Urban Stormwater Mitigation Plan (District SUSMP). The District SUSMP has been developed to address post-construction urban runoff pollution from new development and redevelopment projects that fall under "priority development project" categories. The goal of the District SUSMP is to develop and implement practicable policies to ensure to the maximum extent practicable that development does not increase pollutant loads from a project site and considers urban runoff flow rates, velocities and durations. This goal may be achieved through site-specific controls and/or drainage area-based or shared treatment controls.

The District SUSMP was developed to meet the requirements of the Countywide Model SUSMP, which was collectively developed by the Copermittees and approved by the San Diego Water Board on January 2, 2009. Under the District SUSMP, the District will approve a project's SUSMP plan(s) as part of the development plan approval process for discretionary projects, as well as those projects subject to a ministerial permit. To allow flexibility in meeting the District SUSMP design standards, treatment control BMPs may be located on or off the site, used singly or in combination, or shared by multiple developments, provided certain conditions are met.

San Diego Regional Water Quality Control Board Waste Discharge Requirement (WDR) 98-21. Following the construction of the sand cap under the existing Convair Lagoon Alternative site, the San Diego Water Board issued *WDR 98-21*, Closure and Post-Closure maintenance of the Convair Lagoon Sand Cap, which regulates the sand cap and associated monitoring, maintenance, and, repairs. The WDR states that the action level to trigger repair and or investigation of the cap or cleaning of the storm water conveyance system is 4.6 mg/kg dry weight of PCB contaminates in the sediments. *WDR 98-21* also provides a list of water quality objectives that apply to the water within Convair Lagoon. Some objectives provided are for dissolved oxygen, pH, oil and grease, suspended sediment load/discharge rate, turbidity, and toxicity.

5.10.9.3 Methodology

To evaluate water quality impacts related to implementation of the Convair Lagoon Alternative, Ninyo and Moore evaluated the overall water quality conditions at the site, identified potential significant impacts to water quality from the alternative, described potential mitigation measures, and identified constraints that may potentially affect the alternative (e.g., permitting, dredge material effluent quality). As part of this process, Ninyo and Moore reviewed physical setting information (e.g., topographic, geologic maps, groundwater data) pertaining to the Convair Lagoon area; reviewed readily available maps, reports, and other water quality documents pertaining to the area, including, but not limited to, clean up and abatement orders (CAOs), WDRs, and technical reports prepared by others; performed a site reconnaissance; and, prepared a technical report presenting a summary of findings and conclusions found in Appendix O of this EIR.

5.10.9.4 Thresholds of Significance

Threshold 5.10.9.1: Water Quality. Based on Appendix G of the CEQA guidelines, the Convair Lagoon Alternative would have a significant impact if it would violate any water quality standard, waste discharge requirements or otherwise substantially degrade water quality.

Threshold 5.10.9.2: Groundwater Supply. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Threshold 5.10.9.3: Drainage Pattern Alteration. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in: 1) substantial erosion or siltation on or off site, 2) increase the amount of surface runoff in a manner which would result in flooding on or off site, or 3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Threshold 5.10.9.4: Flooding. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would have a significant impact if it would place housing or structures within a 100-year floodplain or expose people or structures to a significant risk of loss, injury or death from flooding due to failure of a dam or levee or inundation by a seiche, tsunami or mudflow.

5.10.9.5 Impacts and Mitigation Measures

Less Than Significant Impacts

Threshold 5.10.9.2: Groundwater Supply. The Convair Lagoon Alternative site is located within the Mission Valley Groundwater Basin. Groundwater in the area of the Convair Lagoon Alternative site has been accepted from municipal supply and does not currently have existing or potential beneficial uses. Additionally, the Convair Lagoon Alternative does not propose the use of local groundwater supplies or the construction of groundwater wells. Therefore, implementation of the Convair Lagoon Alternative would not result in a substantial depletion of groundwater supplies. Upon completion of construction, the site would be paved with asphalt and drainage conditions would remain similar to existing conditions, with runoff discharged to the Bay. Therefore, implementation of the Convair Lagoon Alternative would not interfere with groundwater recharge in a manner that would result in a net deficit in aquifer volume or the lowering of the local groundwater table. Groundwater supply impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Threshold 5.10.9.3: Drainage Pattern Alteration. Implementation of the Convair Lagoon Alternative would result in the conversion of approximately 10-acres of intertidal and submerged lagoon areas to upland areas, which would alter the drainage patterns of the site. However, this alternative includes paving the upland surface with asphalt concrete, which would reduce the potential for increased erosion or siltation to occur on site to a level below significance. The addition of the paved land area would increase the amount of surface run-off generated at the site. However, the Convair Lagoon Alternative would be required to comply with the Construction General Permit (CGP). The CGP requires the preparation of a SWPPP prior to commencement of construction. As defined within the CGP, SWPPP requirements serve to control construction-related activities such that erosion, sedimentation, material handling, and other construction-related activities are properly undertaken to protect water quality. This requirement is referenced in the Construction Component of the District's JURMP. The Convair Lagoon Alternative would implement a SWPPP and dust-minimizing BMPs during construction.

Because the Convair Lagoon Alternative is within the jurisdiction of the District, the alternative must comply with JURMP requirements. One component of the JURMP is to prepare and implement a project specific Urban Stormwater Mitigation Plan (USMP). The Convair Lagoon Alternative would qualify as a priority project under SUSMP guidelines because it would create a new paved surface that is greater than 5,000 square feet. Accordingly, the alternative would be required to submit a site-specific USMP. The site-specific USMP would be prepared by the project applicant, prior to approval of the proposed alternative, which would require review and approval by the District. In general, the USMP describes the process used to identify pollutants of concern, conditions of concern, and BMPs to control/reduce runoff volume and its associated pollutants. BMP maintenance

requirements are also addressed to ensure consistent pollution prevention performance. Compliance with these regulations would reduce impacts related to an alteration of drainage patterns and increase in run-off to a level below significance. Information related to increased turbidity from sediment disturbance during construction is discussed below under Threshold 5.10.9.1, Water Quality Standards and Requirements.

Upon completion of the Convair Lagoon Alternative construction, the site would be paved with asphalt and drainage characteristics would remain similar to existing conditions in that runoff would be discharged directly to the Bay. The Convair Lagoon Alternative would result in the conversion of approximately 10 acres of intertidal and submerged lagoon areas into upland areas, which would alter the drainage patterns of the site. However, this alternative would be designed with drainage features such as drainage slopes, swales, storm water conveyance systems or other techniques to lessen drainage impacts to reflect natural conditions. In addition, both site pavement and implementation of this alternative's SWPPP would reduce the potential for topsoil or erosion loss. Therefore, operation of the Convair Lagoon Alternative would not result in an alteration of drainage pattern that would increase the amount of surface runoff in a manner which would result in flooding on or off the site. Compliance with the GCP, SWPPP, JURMP, and USMP would further reduce impacts related to drainage pattern erosion and siltation. Therefore impacts related to drainage pattern alteration would be less than significant. Drainage pattern impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Threshold 5.10.9.4: Flooding. The Convair Lagoon site is currently located within a 100-year floodplain. Implementation of the Convair Lagoon Alternative would convert the water portions of the site to land. However, the Convair Lagoon Alternative does not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, implementation of this alternative would not expose people or structures to a significant risk of loss, injury or death from flooding due to failure of a dam or levee or inundation by a seiche, tsunami or mudflow. Therefore the flooding impact would not be significant. Flooding impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Potentially Significant Impacts

Threshold 5.10.9.1: Water Quality. Implementation of the Convair Lagoon Alternative has the potential to impact water quality during construction and post-construction operation, as discussed below.

A sand cap has been installed in Convair Lagoon to isolate existing PCB contamination sediments. Subsequent to installation of the sand cap, monitoring has been conducted that has discovered PCB contamination above the cap, presumably coming from the 60-inch storm drain. In response to this discovery, the San Diego Water Board issued CAO R9-2004-0258, as amended, which addresses the cleanup and abatement of wastes discharged to land at the former TDY site. According to the CAO, significant wastes discharged to soil

and groundwater at the site must be identified and cleaned up, and the discharge of any wastes to Convair Lagoon and San Diego Bay must be abated. A subsequent enforcement order will be necessary to assess and cleanup wastes discharged from landside sources to the marine sediments in Convair Lagoon and San Diego Bay. The CAO states that soil and groundwater must be cleaned up and waste discharges abated prior to conducting remedial actions in Convair Lagoon and San Diego Bay to prevent potential recontamination of the marine sediments in the bay. Therefore, the Convair Lagoon Alternative would commence construction once the PCB source is eliminated.

Construction Phase 1, Site Preparation. Phase 1 construction activities would include the demolition and removal of the existing concrete pier, riprap, concrete mattress energy dissipaters, and the abandoned seaplane marine ramp; in addition to the excavation of existing sediment in the area proposed for the containment barrier.

Demolition debris from demolition activities would be removed from waters daily and stockpiled in the adjacent rental car lot until reuse within the site. During this process, sediments may be disturbed by the removal of submerged or partially submerged structures. Sediments may also be disturbed during the placement of debris as fill material during a later phase. A disturbance in sediment would increase water turbidity on the site, which would impact water quality. This is considered a significant impact.

Potentially significant impacts to water quality from excavation operations include spills or leaks of fuels, oils, or other hazardous fluids into bay waters from construction equipment, resulting in water contamination; and spillage of excavated sediment during loading or unloading, resulting in increased water turbidity. This would result in a significant impact. Additionally, existing PCB contamination has been detected on the surface of the existing Convair Lagoon sand cap. Excavation operations during Phase 1 construction for the Convair Lagoon Alternative could result in the disturbance of these existing on-site contaminated sediments. A disturbance in these sediments would result in contaminated sediments being re-suspended within the water column and possibly transported off site by waves, currents or tides. The re-suspension of contaminated sediments into the water column would result in a significant impact to water quality. Therefore, excavation operations during Phase 1 of construction would result in a significant impact to water quality.

Construction Phase 2, Containment Barrier Construction. Phase 2 construction activities would involve the installation of a rock jetty containment barrier. During rock placement activities for the containment barrier, existing sediment on site would be disturbed, which could result in an increase in contaminated suspended sediments, decrease in dissolved oxygen, increase in turbidity and change in water pH. This would result in a significant water quality impact.

Construction Phase 3, Storm Drain Outlet Extension. Phase 3 of construction activities would involve the extension of the existing storm drains and the construction of associated energy dissipaters. The extension of storm drains and energy dissipaters would require the installation of rip-rap. The placement of rock during this phase of construction would disturb the existing on-site sediments, which could result in an increase in contaminated suspended sediments, decrease in dissolved oxygen, increased turbidity and changes in water pH. This would result in a significant water quality impact.

Construction Phase 4, Sediment Transport and Placement. Phase 4 of construction would involve the transport and placement of approximately 121,890 cy of contaminated marine sediment dredged from the Shipyard Sediment Site Project to the Convair Lagoon Alternative site. Impacts to water quality could occur as a result of overfilling of the crane bucket during placement of the contaminated sediment into the Convair Lagoon site, which could result in spillage of sediments into the water column while the bucket is transporting sediments between the barge and the containment barrier area. Spillage of dredged sediment into the bay would result in an increase in suspended contaminated sediments, decreased dissolved oxygen, increased turbidity, and changes in water pH. Placed sediment within the containment barrier also has the potential to migrate outside of the containment barrier while they are suspended in the water column. This would result in a significant water quality impact.

During placement of dredged materials, a breach in the contaminant barrier could also occur. However, the containment barrier would be designed in accordance with the specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986, and constructed to hold the anticipated volume and weight of the dredged sediments and equipped with berms around the perimeter to minimize the potential for water to enter the bay should a breach occur. Additionally, the containment barrier would be marked with dock blocks, or a similar marker, to identify areas where construction activities cannot occur due to proximity with the containment barrier. These markers would assist in preventing any accidental breaches of the contaminant barrier from construction activities. Due to design and anticipated construction methods, no water quality impacts are anticipated from a potential breach in the containment barrier. Refer to Section 5.10.6, Geology and Soils, for information related to potential breaches from seismic activity.

Construction Phase 5, Containment Cap Installation. Phase 5 of construction would involve the installation of a one-foot thick sand layer and asphalt containment cap. Grading and placement of the sand cap could result in increased sediments flowing to the bay from wind or water erosion. However, compliance with the GCP, SWPPP, JURMP, and USMP would reduce water quality impacts related to this construction. Impacts would be less than significant.

Post-Construction Operation. Upon completion of construction, sediments within the Convair Lagoon have the potential to migrate into the bay through tidal fluctuations. However, the potential for this migration is low because sediments would no longer be suspended in the water column and the filter associated with the containment barrier would mitigate the migration of fill particles into the bay. Due to the presence of the contaminant barrier, post-construction operation of the Convair Lagoon Alternative would result in less than significant impacts to water quality.

With respect to surface water quality runoff, this alternative would result in the conversion of approximately 10 acres of intertidal and submerged lagoon areas into paved upland areas. However, the addition of paved land would not result in a significant increase in polluted run-off from the site because the completed site would be designed to properly drain and filter surface water runoff pollutants through the use of drainage slopes, swales, storm water conveyance systems, or other methods through the implementation of the SWPPP. Therefore, impacts to surface water quality from the alternative would be less than significant. Water Quality impacts from dredging and dewatering construction activities are addressed in Section 4.2, Water Quality, of this EIR.

Mitigation Measures

In addition to the following mitigation measures, the Convair Lagoon Alternative is required to implement mitigation measures 4.2.1 through 4.2.13, listed in the Shipyard Sediment Site EIR, Section 4.2, Water Quality.

Threshold 5.10.9.1: Water Quality, All Phases Construction

Mitigation Measure 5.10.9.1: **Construction Equipment Spills/Leaks.** The following BMPs shall be implemented to minimize the potential for accidental spills/leaks to occur and to minimize fluids entering the bay:

1. Oils and fuels shall be housed in secondary containment structures.
2. Spill cleanup kits shall be available at various locations on site. Personnel shall be trained on the locations of the kits and their proper use and disposal.
3. Personnel shall be trained on the potential hazards from accidental spills and leaks to increase awareness of the materials being handled and the potential impacts.
4. Routine maintenance and inspections of equipment containing oil, fuel, or other hazardous fluids shall be performed to identify worn or faulty parts and needed repairs.

5. The contractor/operator for construction of the Convair Lagoon Alternative shall create and implement a Spill Prevention, Control and Countermeasure Plan, which shall apply to oil and hazardous material spills into waters of the U.S., in quantities that may be harmful. The Spill Prevention, Control and Countermeasure Plan shall identify the contractor's responsible parties, precautionary measures to reduce the likelihood of spills, and the spill response and reporting procedures in case a spill occurs, in compliance with the requirements of the Clean Water Act.
6. During operations, personnel shall perform visual monitoring of equipment for spills or leaks. If a spill/leak is observed, the equipment shall be immediately shut down, the source of the spill/leak shall be identified, and the spill/leak shall be contained, in accordance with the measures identified in the Spill Prevention, Control and Countermeasure Plan.
7. In the event of a spill of materials from a barge, an oil boom shall be deployed in the vicinity of the barge to facilitate the containment of the spill/leaks. An oil boom shall be located on site during all construction activities so that it is readily available in the event of a spill. Oil retrieval and disposal shall be conducted in accordance with the alternative's Spill Prevention, Control and Countermeasure Plan.

Mitigation Measure 5.10.9.2: **Water Quality Monitoring.** Water quality monitoring shall be performed during in-water activities (e.g., demolition, dredging, rock placement, dredge placement) to obtain real-time data so that potential impacts to water quality can be quickly detected and activities modified to avoid impairing or degrading water quality. A system for monitoring of turbidity in the water column in the vicinity of dredging and excavation activities shall be used to assist the operator in adjusting or modifying operations to reduce temporary water quality impacts. Prior to commencement of demolition activities on the project site, the construction contractor shall prepare and implement a water quality monitoring plan which shall include the evaluation of turbidity levels. Monitoring shall be performed in at least three locations. The monitoring stations shall be located: 1) approximately 500 feet upstream of the work area,

2) immediately inside the work area, 3) approximately 250 feet downstream from the work area. The station immediately inside the work area shall be visually monitored. If a turbidity plume is observed, then monitoring of the 250-foot and 500-foot stations shall begin. Samples collected at the 250-foot station are intended to be a screening tool to warn of potential impacts that may reach the 500-foot station. If the water quality samples downstream from the work area are 20 percent greater than the upstream samples, then work shall be halted, the cause of the exceedance shall be identified and additional BMPs, depending on the particular activity (demolition, rock placement or sediment placement) shall be implemented and monitored for effectiveness. Additional BMPs may require modifications to the activity (duration, frequency, location, equipment, and sequencing).

Threshold 5.10.9.1: Water Quality, Phase 1 Construction

Mitigation Measure 5.10.9.3: **Low Tide Demolition.** Demolition activities for submerged structures during Phase 1 of construction shall be scheduled during low tides to expose as much of the submerged structures as possible and to reduce disturbance of sediments or a silt curtain shall be used to control turbidity.

Threshold 5.10.9.1: Water Quality, Phase 4 Construction

Mitigation Measure 5.10.9.4: **Dredging Equipment Selection.** The dredge bucket shall be enclosed to reduce re-suspension caused by dredge spoils falling back into the bay.

Mitigation Measure 5.10.9.5: **Dredging Placement BMPs.** The following BMPs shall be implemented to minimize the re-suspension or spillage of sediments during the placement of dredged materials:

1. Dredged soils shall not be stockpiled on the floor of the San Diego Bay;
2. The dredge bucket shall be fully closed before withdrawing from loading activities;

3. The dredge bucket and barge shall not be overfilled. This shall occur by visual monitoring and visual markings on the barge to indicate limits of fill;
4. A spill plate shall be placed between the barge and the landside to prevent spillage from falling into the bay water;
5. A weir shall be constructed on or near the containment jetty to provide a method to release site water displaced during the placement of fill in CDF. The weir may consist of a low crest in the containment jetty or a pipe in the structural fill of the barrier. The weir outflow will be monitored as described in mitigation measure 5.10.9.2. If an exceedance occurs, a filter fabric barrier or floating silt curtain shall be installed across or just outside of the weir outflow to minimize the potential for suspended sediments to enter the water outside of the CDF.
6. Multiple bites with the dredge bucket shall be prohibited;
7. Dredged material shall be placed carefully and the bucket drop height shall be limited to minimize splashing or sloshing, based on crane operator observations and water quality turbidity;
8. Barge movement and speed shall be in conformance with safe practices.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for hydrology and water quality varies depending on the type of resource that could be impacted. The geographic scope for each of the four hydrology and water quality topic areas is described below as part of the cumulative impact discussion for each of the topics.

Threshold 5.10.9.1: Water Quality Standards and Requirements. The geographic context for the analysis of cumulative impacts relative to water quality standards and requirements encompasses the Pueblo San Diego Hydrologic Unit, the watershed in which the Convair Lagoon Alternative site is located; and the San Diego Bay. Construction and development associated with cumulative projects, such as those identified in Table 5-8, Cumulative Projects in the Vicinity of Convair Lagoon, would contribute both point and non-point source pollutants to downstream receiving waters that have the potential to violate water quality standards. However, development and construction proposed under these

cumulative projects would be subject to regulations that require compliance with water quality standards, including the CWA, Porter-Cologne Water Quality Control Act, NPDES, applicable basin plans, and local regulations. Refer to the Regulatory Setting section above for additional information on federal, state and local water quality regulations. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. In addition, the implementation of Mitigation Measures 5.10.9.1 through 5.10.9.5, would reduce the direct impacts of the Convair Lagoon Alternative to less than significant. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to water quality standards and requirements.

Threshold 5.10.9.2: Groundwater Supplies and Recharge. Groundwater basins typically serve the local area and, therefore, any cumulative impacts would pertain to the local groundwater basin within which the alternative is located. Therefore, the geographic context for the analysis of cumulative impacts relative to groundwater supplies and recharge encompasses the Mission Valley Groundwater Basin. Generally, the cumulative area of analysis is urban in nature. It is unlikely cumulative projects would use groundwater sources for water supply, because the City of San Diego and surrounding areas distribute imported surface water in the cumulative area. Additionally, although cumulative projects may increase impervious surfaces over existing conditions, these projects would be required to adhere to existing regulations that reduce impacts to groundwater resources, including the Porter-Cologne Water Quality Control Act, which requires region-specific Basin Plans and the San Diego Basin Plan, which sets water quality objectives for the San Diego Basin. Refer to the Regulatory Setting section above for additional information on federal and state groundwater regulations. Cumulative project compliance would ensure that a significant cumulative impact would not occur. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to groundwater supplies and recharge.

Threshold 5.10.9.3: Drainage Pattern Alteration. The geographic context for the analysis of alteration of drainage patterns encompasses the Pueblo San Diego Hydrologic Unit, the watershed in which the Convair Lagoon Alternative site is located. Land disturbance and development activities are expected to continue within this watershed which could impact drainage patterns and contribute to erosion. However, cumulative projects would be required to comply with existing regulations relating to surface water runoff and flooding. Refer to the Regulatory Setting section above for additional information on federal, state and local regulations pertaining to drainage alteration. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to the regional alteration of drainage patterns.

Threshold 5.10.9.4: Flooding. The geographic context for the analysis of flooding includes the Pueblo San Diego Hydrologic Unit. Cumulative projects may result in development that would convert permeable surfaces to impermeable surfaces, such as through the construction

of buildings, parking lots, and roadways. New development proposed under cumulative projects would have the potential to alter existing drainage patterns, increase the amount of runoff and potentially increase flooding in the area. Additionally, cumulative projects would potentially place housing or structures within a 100-year flood hazard area. However, cumulative projects in California would be required to conform to applicable regulations, such as National Flood Insurance Act, National Flood Insurance Reform Act, NPDES and Cobey-Alquist Floodplain Management Act. Refer to the Regulatory Setting section above for additional information on federal and state regulations pertaining to flooding. Cumulative project compliance with these regulations would ensure that a significant cumulative impact would not occur. Therefore, the Convair Lagoon Alternative would result in a less than significant cumulative impact related to impeding or redirecting flood flows.

Level of Significance After Mitigation

Upon implementation of mitigation measures 5.10.9.1 through 5.10.9.5, in addition to mitigation measures 4.2.1 through 4.2.13, listed in the Shipyard Sediment Site EIR, Section 4.2, Water Quality, all hydrology and water quality impacts would be reduced to a less than significant level.

Significant Unavoidable Adverse Impacts

No significant and unavoidable adverse hydrology or water quality impacts would occur from implementation of the Convair Lagoon Alternative.

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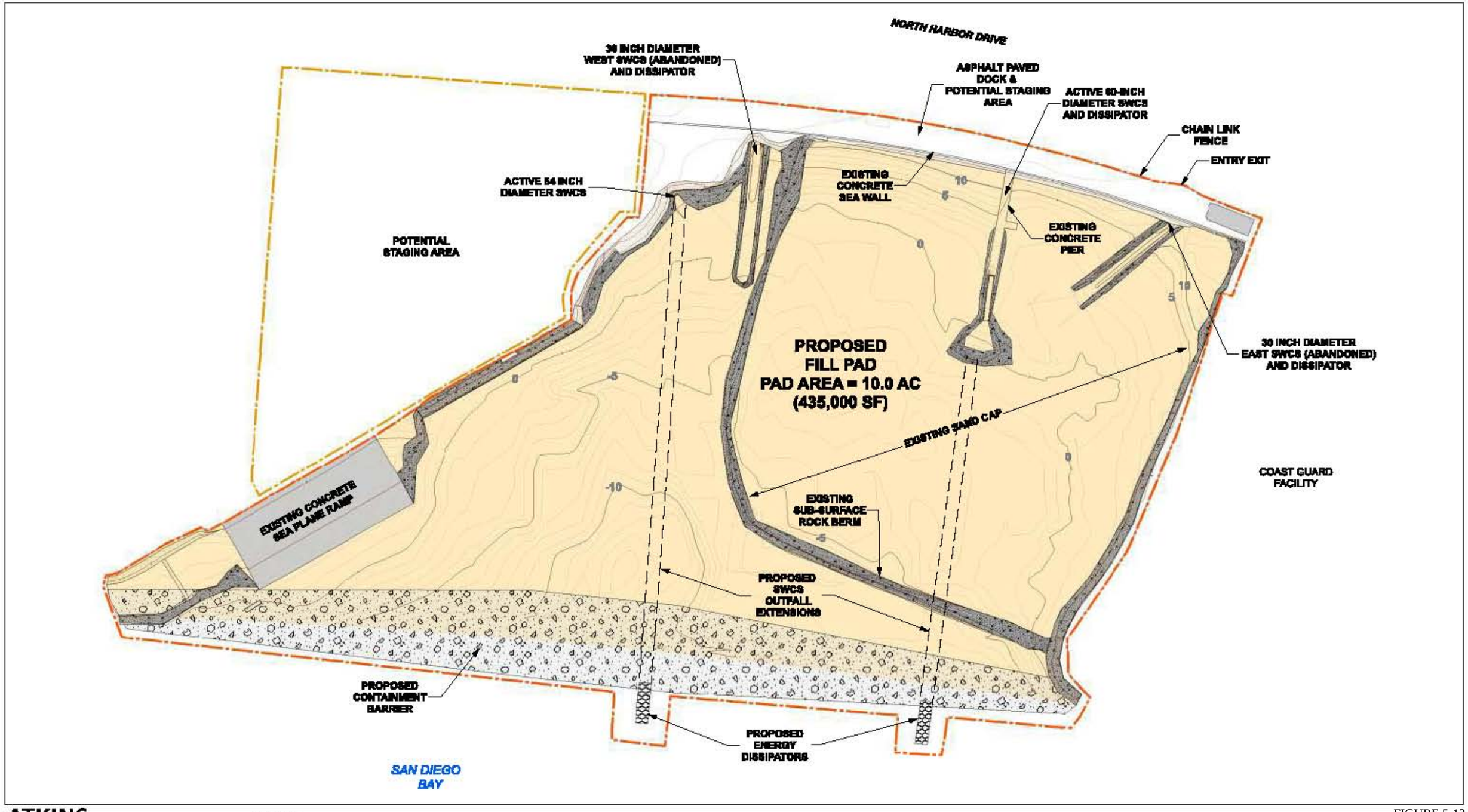

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SOURCE: Nolte 2011

LEGEND
- Project Area
- Existing Concrete
- Proposed Fill Pad
- Existing Rip Rap
- Proposed Containment Barrier
- Proposed SWCS (Storm Drain Conveyance System)
- Existing Index Contour
- Existing Contour

Note: Directions, dimensions and locations are approximate

FIGURE 5-13

Convair Lagoon Alternative
Site Topography

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5.10.10 Land and Water Use Compatibility

This section describes potential impacts to land and water use compatibility resulting from implementation of the Convair Lagoon Alternative. Information in this section is based on a review and analysis of the San Diego Unified Port District (District) Port Master Plan (PMP), the California Coastal Act, and other documents, as cited throughout the section.

5.10.10.1 Existing Environmental Setting

The following discussion identifies existing and planned on site and surrounding land and water uses for the Convair Lagoon Alternative.

On-site Land and Water Uses

The Convair Lagoon Alternative site, including potential staging areas, is approximately 15.4 acres in size and consists of open water, submerged facilities and land. Land facilities on the Convair Lagoon Alternative site are located along the periphery of the site, with the exception of the southern boundary of the site which is San Diego Bay (see Figure 5-4). Land facilities include an asphalt paved area along the northern boundary of the site, parallel to North Harbor Drive; a concrete seawall or rip-rap located along the north, east and west shorelines; and an abandoned concrete sea plane marine ramp located along the southwesterly interface between the land and water. The staging area for the project, located in the western and northwestern part of the site, is a large rental car parking lot.

Submerged facilities located on the Convair Lagoon Alternative site are illustrated in Figure 5-4. The submerged area of the site consists of an approximate seven-**acr**e sand cap that was designed to isolate sediment contamination associated with former Teledyne Ryan Aeronautical operations. In addition to the sand cap, submerged facilities on the site include a sub-surface rock berm and multiple submerged storm drains. The sub-surface rock berm transects the site from the northwest corner to the southeast corner in an "L" shape to contain the existing sand cap. On the northern shoreline, a 60-inch diameter storm drain, a 54-inch diameter storm drain, and two 30-inch diameter storm drains outlet into the lagoon. The two 30-inch diameter storm drains are abandoned in place and are no longer active.

The Convair Lagoon Alternative site is located within Planning District 2 (Lindbergh Field/Harbor Island) of the 2010 PMP. Planning District 2 is one of the nine planning districts that are covered by the PMP and encompasses approximately 996 acres, which consists of about 816 acres of tidelands and 180 acres of submerged tidelands. Within Planning District 2, the site is located in Planning Subarea 24 (East Basin Industrial). Planning Subarea 24 encompasses the entire Convair Lagoon Alternative site. The PMP recommends Planning Subarea 24 for eventual redevelopment into a light, marine-related industrial/business park land use that would allow such activities as scientific laboratories, office space, marine-oriented businesses and light manufacturing plants, with some ancillary storage and warehousing.

Within the PMP, approximately 5.4 acres of the Convair Lagoon Alternative site is designated for Harbor Services (both land and water) and 5.3 acres of the westerly portion of the site is designated for Specialized Berthing (water) (see Figure 5-5). A small portion of the site (1.3 acres), along the southeastern boundary, is designated for Boat Navigation Corridor (water). The western and northwestern portions of the site (3.4 acres), including the staging area, is designated as Industrial Business Park (land).

Surrounding Water and Land Uses

Areas surrounding the Convair Lagoon Alternative site are illustrated in Figure 5-3. Existing and planned water and land uses in the area surrounding the Convair Lagoon Alternative site are discussed below.

Land Uses to the West. Existing land uses adjacent and to the west of the site include a rental car parking lot. The PMP designates land to the west of the site for "Industrial Business Park." This area is recommended for eventual redevelopment into a light, marine-related industrial/business park which could include such uses as scientific laboratories, office space, marine-oriented businesses and light manufacturing plants, with some ancillary storage and warehousing.

Land Uses to the North. Existing land uses adjacent to the northern boundary of the Convair Lagoon Alternative site include a greenway and bicycle path that extend along North Harbor Drive. Land to the north of the Convair Lagoon Alternative site is located within Planning Subarea 24 of the 2010 PMP. Further north, across Harbor Drive, is the San Diego International Airport (SDIA). The SDIA is located partially on State tidelines leased from the District, but is operated, maintained and under the jurisdiction of the San Diego County Regional Airport Authority. The SDIA is located in Planning Subarea 25 of Planning District 2 within the PMP.

Land Uses to the East. The Convair Lagoon Alternative site is bounded to the east by land used for the U.S. Coast Guard Station San Diego. This area of land is under the jurisdiction of the federal government and therefore does not have a PMP land use designation. Activities conducted at the U.S. Coast Guard Station San Diego include maritime law enforcement, illegal immigration enforcement, drug enforcement, and search and rescue and homeland security operations.

Water Uses to the South. Water uses located to the south of the Convair Lagoon Alternative site are within San Diego Bay. This portion of the bay is located within Planning Subarea 24 of the 2010 PMP and is designated as "Boat Navigation Corridor" under the

Public Facilities land use category. Existing water uses to the south of the site include Anchorage A-9. Anchorage A-9 is a nine-acre water area which can accommodate approximately 30 transient water craft using vessels ground tackle.

5.10.10.2 Regulatory Setting

The following discussion describes the adopted plans and policies relevant to the project site and the surrounding area.

San Diego Unified Port District Master Plan (PMP)

The District's PMP provides the official planning policies for the physical development of the tidelands and submerged lands conveyed in trust to the District. Adoption of the PMP occurred in January of 1964, with the most current version dated January 2010, which includes all PMP amendments through 2009. The land use designations are illustrated graphically on maps with descriptions of the land uses and related policies provided in the PMP text. Eleven maps are included in the PMP, two of which illustrate bay-wide land uses and circulation and navigation systems. The remaining nine maps are identified as Precise Plans that pertain to Planning Districts within the bay and illustrate land and water use designations for each Planning District. Specific planning policies are provided in the PMP for each of the nine Planning Districts. The Convair Lagoon Alternative site is located in Planning District 2 (Lindbergh Field/Harbor Island). Planning District 2 is divided into nine subareas, with the Convair Lagoon Alternative located within Subarea 24 (East Basin Industrial).

PMP Planning District 2 (Lindbergh Field/Harbor Island)

The following discussion provides an explanation of each applicable on-site land and water use within Planning District 2 (Lindbergh Field/Harbor Island), Planning Subarea 24, as shown in Figure 5-5.

Industrial Uses. Industrial land and water uses within Planning District 2, Planning Subarea 24 include Aviation Related Industrial, Industrial Business Park and Specialized Berthing. Industrial land and water use objectives of the PMP state that each industrial area on the tidelands should:

8. Be located in convenient proximity to other industrial areas and to living areas from which there are interconnecting transit and thoroughfare routes.
9. 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.

10. Provide sites that are economical to develop and adequate for main buildings, accessory storage, off-street loading, off-street parking, and buffer strips.
11. Be designed to meet performance standards adequate to avoid nuisances, thereby insuring compatibility with surrounding uses.
12. 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.
13. Provide substantial benefits to both local economic needs and to the regional hinterland.

Industrial Business Park. The Industrial Business Park use designation is a land category that permits a wide range of industrial and business uses that emphasize clustering of buildings, extensive landscaping, landscaping, and shared open space. The Industrial Business Park land use is reserved for the types of industrial activities associated with the manufacture, assemblage, processing, testing, servicing, repair, storage or distribution of products; wholesale sales; retail sales that are incidental to permitted uses; transportation and communication uses; parking; industrial, construction, government and business services; and research and development.

Specialized Berthing. The Specialized Berthing use designation is a water category 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. Typical specialized berthing uses include dry docks, graving docks, heavy lift equipment, barge cranes, mooring dolphins, pile supported platforms, steel hatch decking, margin wharves, and ship berths for a variety of cargo, such as roll on/roll off containers, bulk loading, and break bulk.

Public Facilities. Public facilities within Planning District 2, Planning Subarea 24 include Harbor Services, Boat Navigation Corridors, and Boat Anchorage. The Public Facilities objectives of the PMP state that each public facility area on tidelands should:

14. Be located so as to not adversely affect adjacent properties and be designed so that the architectural theme is in harmony with the design theme of the Planning District.
15. Be provided for in advance of need.

16. Provide efficient and economical locations for emergency services along with up-to-date equipment and well trained personnel adequate to provide protection of life and property.
17. Contribute to a coordinated system of functional streets necessary for the safe, efficient and economical movement of people and goods within and through the tidelands.

Harbor Services. The Harbor Services use designation is both a land and water category that identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring.

Boat Navigation Corridor. The Boat Navigation Corridor use designation is a water category for those water areas delineated by navigational channel markers or by conventional waterborne traffic movements. Boat corridors are designated by their predominant traffic and their general physical characteristics. These channels are usually too shallow and too narrow to accommodate larger ships and serve the navigation system in a manner similar to that provided by streets in a land-based circulation system.

Boat Anchorage. Within Planning District 2, the Boat Anchorage water use designation is reserved for Anchorage A-9, Cruiser Anchorage. Anchorage A-9 is a nine-acre water area which can accommodate approximately 30 transient craft using vessels ground tackle. The anchorage is located south of the U.S. Coast Guard Station San Diego.

California Coastal Act

The California Coastal Act (Public Resources Code Sections 30000 et seq.) was passed by the State Legislature in 1976 and became effective January 1, 1977. The California Coastal Commission (CCC) has the authority to review and approve local government and District plans located within the coastal zone. The entire Convair Lagoon Alternative site, and adjacent area, is located within the coastal zone. The Coastal Act requires cities and counties in areas of the coastal zone to prepare local coastal programs (LCPs) to implement the conservation, development, and regulatory policies of the Coastal Act. The PMP implements the policies of the Coastal Act for property within the District's jurisdiction.

Chapter 8 of the Coastal Act sets forth the policies applicable to ports, including the District. The District has the authority to conduct coastal development permit reviews for projects within its jurisdiction. A proposed project must be consistent with the certified PMP to be issued a permit and may be appealed for CCC review only if uses authorized by the proposed project are specifically listed as appealable in section 30715 of Chapter 8, "Ports." Summaries of Coastal Act policies that are applicable to the Convair Lagoon Alternative are presented in the following section in Table 5-35.

San Diego International Airport Land Use Compatibility Plan

The San Diego County Regional Airport Authority is in the process of updating the Airport Land Use Compatibility Plan (ALUCP) for SDIA. SDIA is the primary commercial airport for the San Diego region. The ALUCP for SDIA plays an important role in ensuring that new development in the vicinity of the airport is compatible and safe, and that SDIA can continue to meet the region's aviation needs. The existing SDIA ALUCP was originally adopted in February 28, 1992 and last amended on October 4, 2004.

ALUCPs are plans that guide property owners and local jurisdictions in determining what types of proposed new land uses are appropriate around airports. They are intended to protect the safety of people, property and aircraft on the ground and in the air in the vicinity of the airport. They also protect airports from encroachment by new incompatible land uses that could restrict their operations. ALUCPs are based on a defined area around an airport known as the Airport Influence Area (AIA). AIAs are established by factors including airport size, operations, configuration, as well as the safety, airspace protection, noise, and overflight impacts on the land surrounding an airport. ALUCPs do not affect existing land uses.

San Diego International Airport Master Plan

According to the Federal Aviation Administration (FAA) Advisory Circular 150/5070-6A, the goal of an airport master plan is "to provide guidelines for future airport development which will satisfy aviation demand in a financially feasible manner, while at the same time resolving the aviation, environmental, and socioeconomic issues existing in the community." The SDIA Master Plan documents the San Diego County Regional Airport Authority's planning process for the 661 acres that comprise SDIA. Adopted by the Authority Board on May 1, 2008, the Airport Master Plan provides guidance for development of the airport to meet continued passenger, cargo and operations growth at SDIA. The Airport Master Plan represents the approved actions to be accomplished for phased development of the airport.

Rivers and Harbors Appropriation Act of 1899

Under section 10 of the Rivers and Harbors Appropriation Act of 1899, the building of any wharfs, piers, jetties, and other structures and excavation or fill within navigable waters requires the approval of the Chief of Engineers of the U.S. Army Corps of Engineers (ACOE). Contaminated sediments associated with dredge or fill projects in navigable waters must be addressed, if appropriate.

5.10.10.3 Methodology

To determine potential water and land use planning impacts from implementation of the Convair Lagoon Alternative, available aerial imagery, the California Coastal Act, and the PMP were reviewed. Relevant goals and policies within these documents were compared for consistency with the proposed features of the Convair Lagoon Alternative. Existing land uses were also evaluated for consistency with the features of the proposed Convair Lagoon Alternative.

The Convair Lagoon Alternative is located on State tidelands, which were conveyed, in trust, to the District to manage for the people of California. Consequently, only the PMP and Coastal Act have jurisdiction over the Convair Lagoon Alternative site. Local City plans and policies and policies of the San Diego County Regional Airport Authority are advisory in nature, and therefore, do not constitute regulations governing use or development within the District's jurisdiction. Accordingly, land and water use compatibility impacts associated with consistency with adopted City and San Diego County Regional Airport Authority plans and policies are not considered in this analysis.

5.10.10.4 Thresholds of Significance

Threshold 5.10.10.1: Physically Divide and Established Community. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant land use compatibility impact if it would physically divide an established community.

Threshold 5.10.10.2: Conflict with Applicable Plans and Policies. Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant land and water use compatibility impact if it would conflict with an adopted policy of the PMP or the California Coastal Act.

Threshold 5.10.10.3: Based on Appendix G of the CEQA Guidelines, the Convair Lagoon Alternative would result in a significant land and water use compatibility impact if it would conflict with any applicable habitat conservation plan or natural community conservation plan.

5.10.10.5 Impacts and Mitigation Measures

Less than Significant Impacts

Threshold 5.10.10.1: Physically Divide an Established Community. The Convair Lagoon Alternative site is located in a developed urban area and is surrounded by industrial and governmental development. No residential development is located adjacent to the site and implementation of the Convair Lagoon Alternative would not create a physical barrier (ex. Highway), that would result in the physical division of an established community. Therefore,

the Convair Lagoon Alternative would not physically divide an established neighborhood and no impact would occur.

Threshold 5.10.10.2: Consistency/Conformance with Adopted Plans and Policies and Compatibility with Surrounding Land and Water Uses. The following section evaluates the Convair Lagoon Alternative in terms of consistency with the PMP and the California Coastal Act and compatibility with surrounding land and water uses.

Port Master Plan. Because the Convair Lagoon Alternative involves an amendment to the PMP, consistency with the PMP is evaluated based on the changes proposed by the PMPA, the effect of those changes in relation to the currently approved PMP, and the underlying goals of the PMP.

No existing use designations for land areas on the Convair Lagoon Alternative site would be changed under the proposed PMPA. These areas would remain Industrial Business Park (3.4 acres) and Harbor Services (land) (0.4 acre).

The proposed PMPA would result in changes to the 10 acres of water use designations on the site. Under the proposed PMPA, all existing water areas of the Convair Lagoon Alternative site would change their use designation to Harbor Services (land), as illustrated in Figure 5-6, and be converted to land facilities. The Harbor Services use category in the PMP identifies land and water areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. As illustrated in Figure 5-5**,** the area within the proposed PMPA boundary is designated as Harbor Services (water), Industrial Specialized Berthing (water), and Boat Navigation Corridor (water) under the current PMP. The proposed water use changes that would occur with approval of the Convair Lagoon Alternative PMPA are summarized in Table 5-34. Minor textual changes to the PMP would also be implemented as part of the PMPA to describe the land uses changes associated with the proposed PMPA.

Table 5-34: Proposed Port Master Plan Amendment Land Use Acreage Changes for the Convair Lagoon Alternative

Land Use Designation	Existing (acres)	Proposed (acres)	Net Change (acres)
Boat Navigation Corridor (water)	0.5	0.0	-0.5
Industrial Specialized Berthing (water)	4.5	0.0	-4.5
Harbor Services (water)	5.0	0.0	-5.0
Harbor Services (land)	0.0	10.0	+10.0

Implementation of the Convair Lagoon Alternative would result in the conversion of five acres of Harbor Service (water) use designation to five acres of Harbor Service (land) use designation. The Harbor Service use definition, for both land and water, is the

same and identifies areas devoted to maritime services and harbor regulatory activities of the District, including remediation and monitoring. The existing Convair Lagoon Alternative site contains a seven-acre sand cap for remediation purposes. Implementation of the Convair Lagoon Alternative would continue to use the site for remediation, by placing contaminated dredge from the Shipyard Sediment site into the lagoon and capping it with sand and asphalt. Therefore, the conversion of five acres of Harbor Service (water) use designation to Harbor Service (land) use designation would result in a less than significant impact because the proposed land use designation would be essentially the same as the existing land use designation. No conflict with the PMP would occur as a result of this land use change.

The proposed PMPA would also convert 4.5 acres of Industrial Specialized Berthing (water) use designation to 4.5 acres of Harbor Service (land) use designation. The Convair Lagoon Alternative site is not currently used to conduct any activities typically associated with Industrial Specialized Berthing, such as ship building and repair, water taxi, excursion and ferry craft, commercial fishing boat berthing, and other marine-related uses. It is unlikely to be used for these activities in the future due to the shallow depth of the site, which would preempt the ability to lower the elevation in this water area to accommodate industrial specialized berthing uses. Therefore, the conversion of 4.5 acres of Industrial Specialized Berthing (water) use designation to 4.5 acres of Harbor Service (land) use designation would not be inconsistent with the PMP and would not result in a significant impact.

Within the Convair Lagoon Alternative site, the proposed PMPA would also result in the conversion of 0.5 acres of Boat Navigation Corridor (water) use designation to 0.5 acres Harbor Service (land) use designation. The existing boat navigation corridor on the site is located on the northern periphery of this use area and provides a corridor for small boat traffic traveling between Anchorage A-9 and the main navigation corridor in San Diego Bay, as well as small boat traffic traveling from the East Harbor Island Marina. The loss of 0.5 acres of Boat Navigation Corridor water use from implementation of the Convair Lagoon Alternative on the northern periphery of this corridor would not impact the ability for boats to navigate between the marina, anchorage and the main navigation corridor in San Diego Bay. Therefore, this would not result in an inconsistency with the PMP and a significant impact would not occur.

California Coastal Act. The Convair Lagoon Alternative site is located within the California Coastal Zone and must comply with the California Coastal Act. Table 5-35 identifies Chapter 8, "Port" policies within the California Coastal Act that are applicable to the Convair Lagoon Alternative and provides an analysis of the alternative's consistency with those policies.

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
Article 2 – Policies		
30703	**Protection of commercial fishing harbor space.** 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.	The Convair Lagoon Alternative would convert 10 acres of water use designation to land use designation within the PMP, requiring a PMPA. The 10 acres of land would remain under District control and would be designated as Harbor Services (land) use. The eastern five-acre portion of the site is currently used for sediment remediation and monitoring, consistent with the existing Harbor Services (water) use designation. Changing the designation to Harbor Services (land) use designation would result in the continued use of this area for remediation, consistent with the proposed designation. It would not eliminate or reduce existing commercial fishing harbor space or interfere with the needs of the commercial fishing industry. The 0.5 acres of Boat Navigation Corridor (water) use on the northern periphery of the PMPA area is not currently used for commercial fishing harbor space. The change in designation of this 0.5 area to Harbor Services (land) use would not interfere with existing commercial fishing harbor space. The existing 4.5-acre Industrial Specialized Berthing (water) use designation would be changed to Harbor Services (land) use designation and would not impact existing commercial fishing facilities because the current use is tidal and intertidal habitat. The PMPA does not propose additional recreational boating facilities that would interfere with the commercial fishing industry. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30703.
30705	**Diking, filling or dredging water areas.** (a) Water areas may be diked, filled, or dredged when consistent with a certified port master plan only for the following: 1) Such construction, deepening, widening, lengthening, or maintenance of ship channel approaches, ship channels, turning basins, berthing areas, and facilities as are required for the safety and the accommodation of commerce and vessels to be served by port facilities. 2) New or expanded facilities or waterfront land for port-related facilities. 3) New or expanded commercial fishing facilities or recreational boating facilities. 4) Incidental public service purposes, including, but not limited to, burying cables or pipes or inspection of piers and maintenance of existing intake and outfall lines. 5) Mineral extraction, including sand for restoring beaches, except in biologically sensitive areas.	(a) The Convair Lagoon Alternative would place dredged sediment from the Shipyard Sediment site into Convair Lagoon in order to meet the project objectives to minimize the short-term loss and result in no long-term loss of use of shipyard and other San Diego Bay-dependent facilities. This alternative is consistent with section 30705 (a) (1) because it proposes dredging of the Shipyard Sediment site and filling of Convair Lagoon in order to allow for the continued use of the berthing area and related facilities at the Shipyard Sediment site, which are dependent upon adequate depth to continue to conduct existing shipyard operations. The filling of Convair Lagoon under this alternative would reduce the logistical difficulties associated with the proposed project by reducing truck traffic associated with sediment transportation and disposal. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705 Policy (a) (1). The Convair Lagoon Alternative also includes mitigation for the loss of eel grass, tidal, intertidal and marsh habitat. The mitigation for the loss of these

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
	6) Restoration purposes or creation of new habitat areas. 7) Nature study, mariculture, or similar resource-dependent activities. 8) Minor fill for improving shoreline appearance or public access to the water. (b) The design and location of new or expanded facilities shall, to the extent practicable, take advantage of existing water depths, water circulation, siltation patterns, and means available to reduce controllable sedimentation so as to diminish the need for future dredging. (c) Dredging shall be planned, scheduled, and carried out to minimize disruption to fish and bird breeding and migrations, marine habitats, and water circulation. Bottom sediments or sediment elutriate shall be analyzed for toxicants prior to dredging or mining, and where water quality standards are met, dredge spoils may be deposited in open coastal water sites designated to minimize potential adverse impacts on marine organisms, or in confined coastal waters designated as fill sites by the master plan where such spoil can be isolated and contained, or in fill basins on upland sites. Dredge material shall not be transported from coastal waters into estuarine or fresh water areas for disposal. (d) For water areas to be diked, filled, or dredged, the commission shall balance and consider socioeconomic and environmental factors.	habitats would occur in other parts of San Diego Bay and would be consistent with CCA section 30705 Policy (a) (6). (b) The existing Convair Lagoon Alternative site contains a seven-acre sand cap, which remediates contamination related to former Teledyne Ryan Aeronautical operations. The Convair Lagoon Alternative is designed to take advantage of this existing condition by placing additional contaminated dredged sediment on the site, contained by a containment barrier, sand cap and asphalt pavement. The installation of the containment barrier, sand cap and asphalt pavement would reduce on-site sedimentation. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705(b). (c) The Convair Lagoon Alternative site is not an estuarine or fresh water area. The alternative would potentially result in disruption to fish and bird breeding and migrations, marine habitats, and water circulation; however, these impacts would be mitigated to a level below significant through implementation of mitigation measures 5.10.4.1 through 5.10.4.4 described in this alternative. In addition, the alternative would potentially result in water quality impacts from re-suspension of contaminated sediments into the water column, a decrease in dissolved oxygen, an increase in turbidity and changes in water pH, resulting in significant impacts to water quality. However, these impacts would be mitigated to a less than significant level through implementation of mitigation measures 5.10.9.1 through 5.10.9.5. Sediments dredged from the Shipyard Sediment site would be placed in Convair Lagoon, which is a confined coastal water area designated for sediment contamination and isolation. Prior to construction of the alternative, any existing, on-site contamination would be resolved to the satisfaction of the San Diego Water Board. Within Subarea 24 of the PMP, the Convair Lagoon Alternative site is designated for sediment remediation and monitoring; therefore, the alternative would place contaminated fill in an appropriate bay location. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705 (c). (d) The District's preparation and processing of the draft PMPA for the Convair Lagoon Alternative will consider both socioeconomic and environmental factors. The environmental impacts associated with implementation of the Convair Lagoon Alternative are evaluated in Sections 5.10.3 through 5.10.10, of this analysis. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30705 (d).
30706	**Fill.** Specifies policies, in addition to the other provisions of Chapter 8, which govern filling seaward	(a) The Convair Lagoon Alternative would fill Convair Lagoon with only enough materials to achieve

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
	of the mean high tide line within the jurisdiction of ports. States the following: (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 the hazards of unstable geologic or soil conditions or of flood or storm waters. (d) The fill is consistent with navigational safety.	the purpose of the fill, which is to dispose of contaminated dredge from the Shipyard Sediment site in a manner that would not require substantial truck traffic. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30706 (a). (b) The Convair Lagoon Alternative site was chosen for the placement of dredged fill from the Shipyard Sediment project because Convair Lagoon already contains a sand cap that remediates sediment contamination from former Teledyne-Ryan Aeronautical operations. Impacts to water quality from implementation of the Convair Lagoon Alternative would be reduced to a level below significant with implementation of mitigation measures 5.10.9.1 through 5.10.9.5. Impacts to biological resources, including a reduction of San Diego Bay surface water, would be mitigated to a level below significant with implementation of mitigation measures 5.10.4.1 through 5.10.4.4. Implementation of specified mitigation measures would minimize harmful effects to coastal resources and waters. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30706 (b). (c) The Convair Lagoon Alternative would be consistent with the standards and specifications provided in the Naval Facilities Engineering Command, DM-7.2, Foundations and Earth Structures, dated September 1986. Geologic hazards would be mitigated to a less than significant level with implementation of mitigation measure 5.10.6.1. Therefore, the Convair Lagoon Alternative will afford reasonable protection to persons and property against the hazards of unstable geological or soils conditions or of flood or storm waters. The alternative would be consistent with CCA section 30706 (c). (d) The Convair Lagoon Alternative would result in the filling of a 0.5-acre area of San Diego Bay currently designated as Boat Navigational Corridor, which accommodates small boat traffic traveling between Anchorage A-9 and the main boat channel in San Diego Bay. This 0.5-acre areas would be designated Harbor Services (land) with implementation of the alternative. As discussed above, the loss of 0.5 acres of Boat Navigation Corridor water use as a result of the alternative would not impact the ability for boats to navigate between these two locations. Therefore, the fill would not compromise navigational safety and the Convair Lagoon Alternative would be consistent with CCA section 30706 (d).
30708	**Location, design and construction of port-related developments**. All port-related developments shall be located, designed, and constructed so as to: (a) Minimize substantial adverse environmental	(a) Chapter 5.10.2, "Environmental Analysis," addresses potential impacts to the environment from the siting, design, and construction of the Convair Lagoon Alternative. For each issue analyzed in

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
	impacts. (b) Minimize potential traffic conflicts between vessels. (c) Give 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. (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. (e) Encourage rail service to port areas and multicompany use of facilities.	Chapter 5.10, potential substantial adverse environmental impacts are identified and mitigation measures are provided to minimize these impacts to the extent feasible. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30708(a). (b) The Convair Lagoon Alternative would result in the filling of a 0.5-acre area of San Diego Bay currently designated as Boat Navigational Corridor, which accommodates small boat traffic traveling between Anchorage A-9 and the main boat channel in San Diego Bay. This 0.5-acre areas would be designated Harbor Services (land) with implementation of the alternative. As discussed above, the loss of 0.5 acres of Boat Navigation Corridor water use as a result of the alternative would not impact the ability for boats to navigate between these two locations. Therefore, the project would minimize conflicts between vessels and the Convair Lagoon Alternative would be consistent with CCA section 30708 (b). (c) Implementation of the Convair Lagoon Alternative would result in the conversion of the entire site to an above ground, paved parcel of land with a Harbor Service (land) use designation. The Harbor Service (land) use designation allows areas devoted to maritime services and harbor regulatory activities of the District including remediation and monitoring. As a result of the project, the Convair Lagoon Alternative would provide a new land use area for District to use for port purposes. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30708(c). (d) The project provides a beneficial use to the public by providing a site to place contaminated dredge materials from the Shipyard Sediment site, thus allowing the shipyard to continue to provide berthing areas and related facilities necessary to maintain existing shipyard operations. The Convair Lagoon Alternative site was chosen for the placement of dredged fill from the Shipyard Sediment project because Convair Lagoon already contains a sand cap that remediates sediment contamination from former Teledyne-Ryan Aeronautical operations. The current use of this site for remediation and monitoring precludes it from uses such as recreation. Impacts to existing wildlife habitat within Convair Lagoon resulting from implementation of this alternative would be mitigated to a level below significant with implementation of mitigation measures 5.10.4.1 through 5.10.4.4, including the creation, protection and/or enhancement of wildlife habitat in other areas of San Diego Bay. Therefore, the Convair Lagoon Alternative would be consistent with CCA section 30708 (d).

Table 5-35: Applicable California Coastal Act Chapter 8 "Ports" Policies and Proposed Project Consistency

Section	California Coastal Act (CCA) Policy	Convair Lagoon Alternative Consistency Evaluation
		(e) The project would not utilize rail service or provide development that multiple companies could jointly utilize. Therefore, section 30708 (e) is not applicable to the Convair Lagoon Alternative. No further discussion is required.

Compatibility with Surrounding Land and Water Uses. Land and water use compatibility impacts are based on the compatibility of the Convair Lagoon Alternative with existing and proposed neighboring land uses. Land and water use compatibility is based on a number of factors that relate to the characteristics and activities associated with the proposed Convair Lagoon Alternative and the characteristics and activities of the existing and proposed neighboring land and water uses. These characteristics can be general, such as the type and density of uses, or more specific, including visual design attributes, traffic and pedestrian circulation, and other specific features of the land uses. The visual quality and traffic issues related to this alternative are addressed in Section 5.10.11, Other Environmental Issues, of this analysis. Therefore, this section focuses primarily on existing and proposed land and water use compatibility.

Existing Land Uses. Under the Convair Lagoon Alternative, the 10-acre proposed fill pad area portion of the proposed 15.4-acre project site would be converted from water uses to land uses, as proposed in the PMPA. In other words, the site would be converted from existing submerged land to an above-ground, undeveloped, paved parcel of land. The existing water use areas of the site include 5.0 acres of Harbor Services (water), 4.5 acres of Specialized Berthing (water) and 0.5 acre of Boat Navigation Corridor (water) (see Figure 5-5). These areas total 10 acres in size and would be designated as Harbor Services (land) under the Convair Lagoon Alternative. The land use designations of the remaining 5.4-acre area of the project site located along the northern and western project boundaries would not change, and would remain Industrial Business Park (3.4 acre) and Harbor Services (land) (0.4-acre). An additional 1.6 acres of the site area that is not included in the PMPA located adjacent to the southern part of containment barrier would be submerged under water and would remain 0.8 acres of Boat Navigation Corridor and 0.8 acres of Specialized Berthing.

The site is located in a highly developed urban area, bounded by San Diego Bay to the south, North Harbor Drive and SDIA to the north, the U.S. Coast Guard Station to the east and a rental car parking lot to the west. The conversion of a portion of the site from water to land would be compatible with the area because of the industrial and commercial nature of the surrounding area. A large paved parking lot is located to the west of the site, and implementation of the Convair Lagoon Alternative would result in a similar land use. The

conversion of the site would not impact any U.S. Coast Guard or SDIA operations and would also be considered compatible with these surrounding land uses, which include manufacturing, aviation and industrial facilities. Implementation of the Convair Lagoon Alternative would not conflict with the Airport Land Use Compatibility Plan for the San Diego International Airport. Refer to section 4.7.8, Hazards and Hazardous Materials, for additional information regarding this conclusion

San Diego Bay is located to the south of the site. The conversion of the site from water to land would not substantially conflict with the water uses within San Diego Bay because the Convair Lagoon Alternative site is currently used for remediation and monitoring activities and is not used for any recreational, fishing or boating activities. Boat Anchorage A-9 is located south of the Convair Lagoon Alternative site and implementation of the alternative would not result in any water use impacts to this anchorage because upon completion of the alternative, boats would continue to be able to navigate through the area of water south of the site and would continue to be able to utilize Anchorage A-9, as well as the marina facilities found at the Harbor Island East Basin.

Furthermore, implementation of the Convair Lagoon Alternative would continue the existing use of the site as remediation and monitoring, with the only major conversion being the change from water to land. For these reasons, the Convair Lagoon Alternative would be compatible with the surrounding land uses and would not result in a significant land use compatibility impact.

Proposed Land Uses. The Convair Lagoon Alternative site is located within Subarea 24 of Planning District 2 within the 2010 PMP. As discussed above, the 10-acre portion of the proposed fill pad area (see Figure 5-4) would be converted from Harbor Services (water), Specialized Berthing (water) and Boat Navigation Corridor (water) uses to Harbor Services (land) use under the Convair Lagoon Alternative. Land to the north of the site is designated as Harbor Services (land); land to the east of the site is under the jurisdiction of the federal government and does not have a PMP land use designation; land to the west of the site is designated as Industrial Business Park; water to the south of the site is designated as Boat Navigation Corridor.

Within the PMP, Subarea 24 land sites are recommended for eventual redevelopment into a light, marine-related industrial/business park to include such uses as scientific laboratories, office space, marine-oriented businesses and light manufacturing plants, with some ancillary storage and warehousing where necessary to conduct primary industrial activities. The Convair Lagoon Alternative site is designated as Harbor Services which identifies sediment remediation and monitoring as a use allowed within this designation. The conversion of the site from water to land is consistent with this use because the proposed land use is industrial in nature and a paved lot would result in a compatible land use. Furthermore, implementation of the Convair Lagoon Alternative would be consistent with the PMP's intent to use the site for sediment remediation and monitoring. Therefore, the Convair

Lagoon Alternative would not result in a significant impact to proposed land uses and the impact would not be significant.

Threshold 5.10.10.3: Conflict with Applicable Habitat Conservation Plan. The Convair Lagoon Alternative site is under the jurisdiction of the District and is not subject to the requirements of any habitat conservation plan. Local biological resource policies and ordinances relevant to the Convair Lagoon Alternative include the Port Master Plan, the Southern California Eelgrass Mitigation Policy and the Magnuson-Stevens Fishery Conservation and Management Act. Refer to Section 5.10.4, Biological Resources, for an analysis of consistency with these policies.

Potentially Significant Impacts

Potential impacts to specific issues such as biological resources and water quality are addressed in Sections 5.10.3 through 5.10.10 of this analysis. Other than the impacts addressed in these other sections of this EIR, the proposed Convair Lagoon Alternative would not result in a significant land and water use compatibility impacts relating to general land use compatibility and plan conformance. Any potentially significant impacts associated with changes to the land use designations within the Convair Lagoon Alternative site would be mitigated with approval of the proposed PMPA.

Mitigation Measures

No additional mitigation would be required because mitigation measures are specified in the corresponding sections for more specific issues listed in Sections 5.10.3 through 5.10.10 and no additional significant impacts associated with general land use compatibility and plan conformance were identified.

Cumulative Impacts

Threshold 5.10.10.1 and Threshold 5.10.10.2: Compatibility with Surrounding Land and Water Uses and Consistency/Conformance with Adopted Plans and Policies. The geographic scope of analysis for cumulative impacts includes lands under the jurisdiction of the District and California Coastal Act, which is also where the Convair Lagoon Alternative site is located. It is anticipated that development of future cumulative projects would undergo CEQA review which would require a consistency analysis with applicable plans and policies and existing and proposed surrounding land and water uses. As required by CEQA, cumulative projects would be consistent with the existing adopted plans and surrounding land uses, or require mitigation measures or design review to ensure consistency, in order for project approvals to occur. Therefore, it is anticipated that cumulative development, in combination with the Convair Lagoon Alternative, would be consistent with applicable plans, policies and surrounding land uses, resulting in a less than significant cumulative impact.

Level of Significance After Mitigation

With implementation of the mitigation measures specified in Sections 5.10.3 through 5.10.10 of this analysis, significant cumulative impacts associated with surrounding land uses and consistency with adopted plans and policies would be reduced to a level below significant.

Significant Unavoidable Adverse Impacts

No significant and unavoidable adverse land use impacts would occur from implementation of the Convair Lagoon Alternative.

5.10.11 Other Environmental Issues

This section contains a brief statement disclosing the reasons that various possible significant effects of the Convair Lagoon Alternative were found not to be significant and, therefore, were not discussed in detail in the analysis. Environmental issue areas found to have potentially significant impacts are addressed in the various subsections of Section 5.10 of this analysis.

5.10.11.1 Effects Found Not to be Significant

The Convair Lagoon Alternative does not have the potential to result in significant impacts to: Aesthetics; Agricultural Resources; Mineral Resources; Noise; Population and Housing; Public Services; Recreation; and Utilities and Service Systems. The exception is Transportation/Traffic which would result in impacts that are the same as those identified for the proposed project and would be mitigated to a less than significant level with the same measures as are identified for the proposed project. The discussion of each topic is addressed by issue questions provided in Appendix G, Environmental Checklist Form, of the CEQA Guidelines.

Aesthetics

Would the Convair Lagoon Alternative have a substantial adverse effect on a scenic vista?

The Convair Lagoon Alternative is located within Planning District 2 Precise Plan, Lindbergh Field/Harbor Island, of the Port Master Plan (PMP). The PMP provides a framework for the consideration of vistas and views that have been recognized as scenic and important to the area and the region. Within the PMP, vista areas are identified as areas that include points of natural visual beauty, photo vantage points, and other panoramas. The intent of the PMP is to guide the arrangement of development on designated vista areas to preserve and enhance such vista points. Major vista areas are indicated by a symbol on the PMP Precise Plan Maps.

The Planning District 2 Precise Plan identifies six different scenic vista areas. All of these areas are located on Harbor Island, with views oriented south towards San Diego Bay. The closest scenic vista to the alternative's site is located to the southwest, along Harbor Island Drive at the most eastern portion of Harbor Island (see Figure 5-14). The viewshed for this vista area extends to the south, in the opposite direction of the Convair Lagoon Alternative site. Although the Convair Lagoon Alternative site is visible to the north of this identified scenic vista, it is not within the identified viewshed, which extends to the south of Harbor Island towards San Diego Bay. Therefore, implementation of the Convair Lagoon Alternative would not impact a scenic vista and no further analysis is required. Additionally, the Convair Lagoon Alternative site is not visible from any designated scenic vista areas located in Planning District 1, Planning District 3 or Planning District 6, due to the orientation of the identified scenic vistas and view obstructions from land facilities, such as the US Coast Guard Station.

Would the Convair Lagoon Alternative substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

The Convair Lagoon site is located along North Harbor Drive, which is not a State designated scenic highway. Additionally, no significant trees, rock outcroppings, historical buildings or other designated scenic resources are located on the alternative's site. Due to the absence of State scenic highways in the site area, no impacts to scenic resources associated with scenic highways would occur. Refer to Section 5.10.5, Cultural Resources, for an evaluation of structures on the alternative's site and their potential to be classified as historic. Therefore a significant impact would not occur.

Would the Convair Lagoon Alternative substantially degrade the existing visual character or quality of the site and its surroundings?

The existing visual character of the Convair Lagoon Alternative site includes a small waterfront embayment and associated land facilities used, in part, for sediment remediation and monitoring. Submerged facilities include a sand cap, a rock berm and multiple storm drains. Land facilities include an asphalt paved dock, an abandoned pier, a concrete seawall, rip-rap, an abandoned sea plane marine ramp, and a chain link fence.

The visual character of areas to the west of the Convair Lagoon Alternative site includes a large rental car parking lot. Beyond the rental car facility, the visual character is an industrial/business park development. The visual character of areas to the north of the site includes a bicycle path, North Harbor Drive and the San Diego International Airport. The visual character of the area to the east of the site includes the United States San Diego Coast Guard Station. The visual character to the south of the site includes San Diego Bay.

During construction, the existing visual character of the site would be altered through the presence of construction equipment such as barges, trucks, cranes and pumps. However, the presence of construction equipment would be temporary and would be removed upon completion of construction. Visual impacts associated with construction would be occur for a period of approximately 15 months and would not permanently degrade the visual character of the site or surrounding area.

Upon completion of construction, the existing visual character of the Convair Lagoon site would be permanently altered. Convair Lagoon Alternative site would be converted from an embayment to an undeveloped, above-ground, paved parcel of land, which would permanently change the visual character of the site. However, this permanent change would not degrade the visual character of the site because the paved site would be consistent with the visual character of land facilities to the north, east and west, which include parking lots, roadways, airport runways and facilities, and a Coast Guard complex. No structures or buildings would be placed on the Convair Lagoon Alternative site upon completion of construction. Upon completion of the containment cap, the elevation of the site would be approximately 10 feet MLLW. The elevation transition between the existing, surrounding ground surface, which is 12 feet MLLW, would be gradual across the site and would be based on surface drainage requirements. Therefore, the finished elevation of the project would not visually impair views from Harbor Drive or adjacent sidewalks. Although implementation of the Convair Lagoon Alternative would permanently alter the visual character of the site, for the reasons described above it would not do so in a way that would degrade the existing visual quality of the site or surrounding area.

Would the Convair Lagoon Alternative create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction of the Convair Lagoon Alternative would occur during daytime hours. Nighttime construction and associated lighting would not occur. Upon completion of construction, the Convair Lagoon Alternative site would not contain any new structures or lighting facilities. Therefore, the Convair Lagoon Alternative would not create any new sources of light or glare that would adversely affect day or nighttime views in the area. Therefore, no impact would occur and no further analysis is required.

Agricultural and Forest Resources

Would the Convair Lagoon Alternative 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?

The Convair Lagoon site and surrounding area is classified as Urban and Built-up land by the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (Department of Conservation, 2008). No portion of the site or surrounding

area is designated as Prime Farmland, Unique Farmland or Farmland of Statewide Importance by the FMMP. No farmland or row crops exist within the site or in the vicinity of the site. Therefore, construction of the Convair Lagoon Alternative would not convert any agricultural resources to non-agricultural use. Therefore no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative conflict with existing zoning for agricultural use, or a Williamson Act contract?

The Convair Lagoon Alternative is located within the PMP Planning District 2 Precise Plan. The PMP identifies a variety of land and water uses, such as commercial, industrial, and recreation. The PMP has no agricultural land use designations and Convair Lagoon has a PMP land use designation of Harbor Services, Industrial Specialized Berthing and Boat Navigation Corridor. No agricultural resources exist on the Convair Lagoon Alternative site or within surrounding areas, as discussed above. The alternative would not conflict with existing zoning for agriculture use or a Williamson Act Contract. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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 4256), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The Convair Lagoon Alternative site is located within a highly developed urban area that lacks forest, timberland or timberland production. Under the Port Master Plan, the Convair Lagoon Alternative site is designated Harbor Services, Industrial Specialized Berthing, Industrial Business Park and Boat Navigation Corridor. No forest land, timberland or timber land production exists within the site or the surrounding vicinity. Therefore, the Convair Lagoon Alternative would not conflict with existing on-site or off-site zoning for forestland, timberland or timberland production. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in the loss of forest land or conversion of forest land to non-forest use?

As discussed above, no forest land, timberland or forest resources exist on the Convair Lagoon Alternative site or within the vicinity of the site. Therefore, implementation of the Convair Lagoon Alternative would not result in the loss of forest land or the conversion of forest land to non-forest use. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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 agricultural resources exist on the Convair Lagoon Alternative site or in the surrounding area. Additionally, no forest land resources exist on the Convair Lagoon Alternative site or in the surrounding area. Implementation of the Convair Lagoon Alternative would not involve any changes to the existing environment that would result in the conversion of farmland to non-agricultural use or would result in the conversion of forest land to non-forest use. Therefore, no impact would occur and no further analysis is required.

Mineral Resources

Would the Convair Lagoon Alternative 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 commercial mining operations exist on the Convair Lagoon Alternative site or within San Diego Bay. Additionally, the Port Master Plan has not identified any important mineral resources in the area or designated plans for mineral resource extraction (District, 2010). The Surface Mining and Reclamation Act require the classification of land into Mineral Resource Zones (MRZ), according to the land's known or inferred mineral resource potential. The Convair Lagoon Alternative site and vicinity are located MRZ-1 (SD, 2007). MRZ-1 areas are defined as areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. The MRZ-1 zone is applied by the California Geological Survey to lands where well developed lines of reasoning, based on economic-geologic principles and adequate data, indicate that the likelihood for occurrence of significant mineral deposits is nil or slight. The Convair Lagoon Alternative site does not have mineral resources and would not result in the loss of availability of a known mineral resource that is of value to the region or residents of the state. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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?

As discussed above, no mineral resources exist on the Convair Lagoon Alternative site or surrounding areas, including locally-important mineral resource recovery sites. The applicable land use plan for the Convair Lagoon site is the Port Master Plan, which does not identify any important mineral resources in the area and does not designate plans for mineral resource extraction (District, 2010). The Convair Lagoon Alternative would not result in the loss of any locally-important minerals. Therefore, no impact would occur and no further analysis is required.

Noise

Would the Convair Lagoon Alternative result in 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?

Convair Lagoon is located in a heavily developed urban area with no surrounding noise-sensitive land uses. Noise generated from construction operations associated with this alternative would come from the use of barges, dump trucks, cranes and hydraulic pumps. Construction activities would generate temporary, periodic increases in noise levels on and near the site. However, construction operations would comply with the City of San Diego Noise Level Compatibility Standards and City of San Diego Noise Ordinance. Compliance with these regulations would ensure that construction of the Convair Lagoon Alternative would not generate noise in excess of established standards. Additionally, upon completion of construction, only an undeveloped, paved parcel of land would remain and no operational noise would occur. Therefore, a significant impact would not occur and no further analysis is required.

Would the Convair Lagoon Alternative result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction of the Convair Lagoon Alternative would generate temporary periodic increases in noise levels. However, the site is located within a heavily developed urban area where construction related noises would be consistent with ambient noise levels. For example, the SDIA is located approximately 1,000 feet directly north of the alternative's site. Noise associated with aircraft operations at the San Diego International Airport average 99 decibels for departures and 95 decibels for arrivals near the runway approximately 2,000 feet from the project site (single event noise exposure level) (SDCRAA, 2010a). However, the noise levels at the site from aircraft operations at the SDIA are currently 65 dBA CNEL (SDCRAA, 2010a). In addition, the nearest sensitive receptor (residences) is located approximately 0.8 mile to the east near the intersection of West Laurel Street and Kettner Boulevard, where the CNEL associated with SDIA operations is 75 dBA CNEL (SDCRAA, 2010b). The distance from the construction site to these residences is approximately 0.8 mile, which is a sufficient distance to attenuate noise levels from construction equipment to ambient levels, assuming noise levels associated with the operation of heavy construction equipment typically range from about 78 to 88 decibels Leq at 50 feet from the source (FHWA, 2006), and the standard distance attenuation criteria of 3dBA per doubling of distance.

Construction of the Convair Lagoon Alternative would comply with the City of San Diego Noise Level Compatibility Standards and City of San Diego Noise Ordinance. Noise generated from these construction activities would be temporary in nature and due to the surrounding land uses, would not exceed the existing noise levels in the area. Further, construction activities would not involve blasting or pile driving, and therefore would not

result in excessive groundborne vibration. Additionally, upon completion of construction, only an undeveloped, paved parcel of land would remain and no operational noise would occur. Therefore, the Convair Lagoon Alternative would not result in excessive noise levels or vibration.

Would the Convair Lagoon Alternative result in a substantial permanent increase in ambient noise levels in the Convair Lagoon Alternative vicinity above levels existing without the Convair Lagoon Alternative?

Noise generated from construction activities would be temporary in nature. Upon completion of the Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land. No permanent operational noise would occur and the Convair Lagoon Alternative would not result in any permanent increase in ambient noise. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in a substantial temporary or periodic increase in ambient noise levels in the Convair Lagoon Alternative vicinity above levels existing without the Convair Lagoon Alternative?

Construction of the Convair Lagoon Alternative would generate temporary periodic increases in noise levels. However, the site is located within a heavily developed urban area where construction related noises would be consistent with ambient noise levels. For example, the SDIA is located approximately 1,000 feet directly north of the alternative's site. Noise associated with aircraft operations at the San Diego International Airport average 99 decibels for departures and 95.2 decibels for arrivals near the runway approximately 2,000 feet from the project site (single event noise exposure level) (SDCRAA, 2010a). However, the noise levels at the site from aircraft operations at the SDIA are currently 65 dBA CNEL (SDCRAA, 2010a). In addition, the nearest sensitive receptor (residences) is located approximately 0.8 mile to the east near the intersection of West Laurel Street and Kettner Boulevard, where the CNEL associated with SDIA operations is 75 dBA CNEL (SDCRAA, 2010b). The distance from the construction site to these residences is approximately 0.8 mile, which is a sufficient distance to attenuate noise levels from construction equipment to ambient levels, assuming noise levels associated with the operation of heavy construction equipment typically range from about 78 to 88 decibels Leq at 50 feet from the source (FHWA, 2006), and the standard distance attenuation criteria of 3dBA per doubling of distance.

Furthermore, construction operations would comply with the City of San Diego Noise Level Compatibility Standards and the City of San Diego Noise Ordinance. Therefore, the Convair Lagoon Alternative would not result in a substantial increase in ambient noise and no impact would occur.

For an area 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 Convair Lagoon Alternative expose people residing or working in the area to excessive noise levels?

The Convair Lagoon Alternative is located within the Airport Land Use Compatibility Plan Airport Influence Area for the San Diego International Airport. However, the Convair Lagoon Alternative would not include the construction of any structure or building in which people would work or reside. Therefore, implementation of the Convair Lagoon Alternative would not expose people to excessive noise levels from the San Diego International Airport. Therefore, no impact would occur and no further analysis is required.

For a Convair Lagoon Alternative within the vicinity of a private airstrip, would the Convair Lagoon Alternative expose people residing or working in the Convair Lagoon Alternative area to excessive noise levels?

The site is not located within a private airport land use plan or located within two miles of a private airport. Additionally, the Convair Lagoon alternative does not include the construction of any structure or building where people would work or reside. Therefore, the Convair Lagoon Alternative would not expose people residing or working in the area to excessive noise levels from a private airport. Therefore, no impact would occur and no further analysis is required.

Population and Housing

Would the Convair Lagoon Alternative 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)?

The Convair Lagoon Alternative would not directly or indirectly induce population growth in the area because this alternative would not create any new housing units or employment generating land uses. Upon completion of this alternative, Convair Lagoon would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land. No structures, water infrastructure or wastewater infrastructure would be constructed on the completed site. Therefore, the Convair Lagoon Alternative would not directly or indirectly induce substantial population growth and no impact would occur.

Would the Convair Lagoon Alternative displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No homes exist and no people reside on the Convair Lagoon Alternative site. Therefore, construction of this alternative would not displace any existing housing units, necessitating

the construction of replacement housing elsewhere. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No homes exist and no people reside on the Convair Lagoon Alternative site. Therefore, implementation of this alternative would not displace any people and would not require the construction of replacement housing elsewhere. Therefore, no impact would occur and no further analysis is required.

Public Services

Would the Convair Lagoon Alternative 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 fire protection services?

The City of San Diego Fire-Rescue Department provides fire protection services to the site and surrounding areas. Upon completion of this alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the service standards of the City of San Diego Fire-Rescue Department by increasing service demand. As a result there would be no need to develop new or physically alter existing fire protection facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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 police protection services?

Police protection service is provided to the site and surrounding area from the Harbor Police and City of San Diego Police Department. Upon completion of this alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the service standards of the Harbor Police or the City of San Diego Police Department by increasing service demand. As a result there would be no

need to develop new or physically alter existing police protection facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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 school services?

School service is provided to the site and surrounding area by the San Diego Unified School District. Upon completion of this alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the service standards of the San Diego Unified School District by increasing service demand. As a result there would be no need to develop new or physically alter existing school facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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 other public facilities?

Upon completion of the Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not include the construction of any new buildings or structures that would involve human habitation or occupancy. Therefore, the Convair Lagoon Alternative would not increase the local population and would not impact the performance objectives for any other public facility. As a result, there would be no need to develop new or physically alter existing governmental facilities. Therefore, no impact would occur and no further analysis is required.

Recreation

Would the Convair Lagoon Alternative 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?

The Convair Lagoon Alternative does not include the construction of any new buildings or structures that would involve human habitation or occupation. Upon completion of the

Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not increase population in the area and would not increase the demand for existing recreational facilities. Therefore, no impact to existing recreational facilities would occur and no further analysis is required.

Does the Convair Lagoon Alternative include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Convair Lagoon Alternative does not include the construction of any new buildings or structures that would involve human habitation or occupation. Upon completion of the Convair Lagoon Alternative, the site would be converted from a submerged lagoon to an undeveloped, above-ground, paved parcel of land with no structures. The Convair Lagoon Alternative would not increase population in the area and would not require the construction or expansion of recreational facilities elsewhere. Therefore, no impact would occur and no further analysis is required.

Transportation and Traffic

Would implementation of the Convair Lagoon Alternative 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 system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit or 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 county congestion management agency for designated roads or highways?

The Convair Lagoon Alternative would generate truck trips during the 15-month construction period. All five phases of construction would generate a total of 7,714 truck trips. The maximum daily truck trips that would occur during the construction period would be 98 truck trips per day.

For this analysis, truck trips have been converted to passenger car equivalents (PCEs) using a factor of three (one truck = three passenger cars). Therefore, the alternative would generate a total of 23,142 PCE truck trips during the 15-month construction period. The maximum daily trips during the construction period would be 294 PCE truck trips.
Once construction is completed, no permanent vehicular trips would be associated with operation of the Convair Lagoon Alternative.

The Convair Lagoon Alternative would generate daily construction-related trips for the following two purposes, which are discussed further under separate headings below:

1. Disposal of highly contaminated materials
2. Construction of the confined disposal facility (CDF) at Convair Lagoon

Disposal of Highly Contaminated Materials. The Convair Lagoon Alternative would result in the generation of truck trips associated with the implementation of Phase 4, Sediment Transport and Placement, Sub-Phase B: Dewatering and Disposal. Under this alternative, approximately 21,510 cy, or 15 percent, of dredged sediment from the Shipyard Sediment site would not qualify for placement in the Convair Lagoon Alternative CDF because of high contamination levels. This 21,510 cy of contaminated dredged sediment would be transported to land via barge and would require dewatering prior to loading the dredge materials onto trucks and transporting it to a Class I landfill for disposal. It is estimated that approximately 2,205 truck trips (6,615 PCE truck trips) would be required to transport the highly contaminated materials to the Class I landfill site, which most likely would be Kettleman Hills Landfill in Kings County, California. The preferred route to Kettleman Hills Landfill in Kings County, California is via I-5 north. Trucks departing from potential Staging Areas 1 through 4 would access I-5 south via E. Harbor Drive and 28th Street; trucks departing from Staging Area 5 would access I-5 south either directly from Bay Marina Drive or from W. 32nd Street to Marina Way to Bay Marina Drive.

The process regarding the dredging, dewatering and transport of 15 percent of highly contaminated materials removed from the Shipyard Sediment site is exactly the same as is described in Chapter 3.0 Project Description. Therefore, the analysis provided in Section 4.1, Traffic, for the Shipyard Sediment Site Project addressing conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system would apply to this portion of the Convair Lagoon Alternative and is not repeated here. Section 4.1, Traffic, identifies three mitigation measures to reduce impacts associated with truck traffic from the five potential staging areas to the selected Class I disposal facility, most likely Kettleman Hills Landfill in Kings County, California. These mitigation measures would also be implemented under the Convair Lagoon Alternative to reduce impacts associated with truck trips transporting highly contaminated materials. No new impacts associated with the disposal of highly contaminated materials would occur under this alternative that were not adequately addressed in and mitigated by the proposed project analysis. Therefore, no new mitigation measures beyond those identified for the proposed project would be required.

Construction of the Confined Disposal Facility (CDF) in Convair Lagoon. The Convair Lagoon Alternative would also result in the generation of truck trips associated with the construction of the CDF in Convair Lagoon. As identified in Table 5-6, Convair Lagoon Alternative Truck and Barge Trips (by Construction Phase), Phases 2, 3 and 5 would generate a combined total of 5,509 truck trips (16,527 PCE truck trips) during construction. Phase 2 (Containment Barrier Construction) would generate a total of 4,174 truck trips (12,522 PCE truck trips); Phase 3 (Storm Drain Outlet Extension) would generate 205 truck

trips (615 PCE truck trips); and Phase 5 (Containment Cap Installation) would generate 1,310 truck trips (3,930 PCE truck trips). However, the maximum daily truck trips that would occur during the 15-month construction period would be 98 truck trips per day or 294 PCE truck trips as part of Phase 2 of construction.

Construction truck trips associated with the Convair Lagoon Alternative would mostly occur on city of San Diego streets; therefore, the City of San Diego Traffic Impact Study Manual (1998) was used as the basis for the analysis of impacts associated with construction truck trips. According to the Traffic Impact Study Manual, traffic impact studies are required for developments that generate more than 500 daily trip ends and do not conform to the applicable community plan. The threshold is 1,000 daily trip ends if a project conforms to the community plan. These thresholds were set by the City to allow projects that do not generate a substantial amount of traffic to avoid preparation of a traffic impact study, since the trip ends they generate are generally too small to result in a significant impact on the surrounding circulation system. Since the project is not within an applicable City of San Diego community plan, the 500 daily trip end threshold was used for this analysis.

Construction of the Phase 2 would generate a maximum of 294 PCE truck trips, which is less than the 500 daily trip end threshold set by the City. Therefore, in accordance with the City's Traffic Impact Study Manual (1998), a traffic impact study would not be required. Because the number of trips is too low to trigger the preparation of a traffic impact study, the District has determined that the generation of a maximum of 294 PCE truck trips per day during construction of the CDF would not result a significant impact on the local circulation system. Therefore, implementation of the Convair Lagoon Alternative would not conflict with any applicable circulation system traffic performance measures or plans.

It should be noted that the Convair Lagoon Alternative would implement a Parking Management Plan, as outlined in Section 4.1, Traffic, of this EIR and a Traffic Control Plan as outlined in Section 4.3, Hazards and Hazardous Materials, of this EIR. Further, the Convair Lagoon Alternative would implement mitigation measure 4.6-1, outlined in Section 4.6, Air Quality, of this EIR, which requires construction activities to be timed so as not to interfere with peak hour traffic and to minimize obstructions of traffic lanes adjacent to the site. Implementation of these mitigation measures would reduce indirect traffic-related impacts to a less than significant level.

Would the Convair Lagoon Alternative 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?

Refer to Section 5.10.8, Hazards and Hazardous Materials, for a detailed discussion regarding construction activities associated with the Convair Lagoon Alternative and their potential to impair air traffic patterns. Upon completion of construction, the Convair Lagoon Alternative site would consist of an above-ground, undeveloped, paved parcel of land. No structures or buildings would occur on the site that could impact air traffic patterns.

Therefore, implementation of the Convair Lagoon Alternative would not require changes in air traffic patterns that could result in substantial safety risks. No impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Convair Lagoon Alternative does not involve any roadway or intersection improvements, and does not involve any uses that are not compatible with the surrounding area. Upon completion of construction, the Convair Lagoon Alternative site would consist of an above-ground, undeveloped, paved parcel of land. No vehicular trips would be associated with operation of the Convair Lagoon Alternative. Therefore, the Convair Lagoon Alternative would not increase traffic hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. No impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in inadequate emergency access?

As described in Section 5.10.1, Alternative Description, construction of the alternative would result in approximately 7,714 truck trips and 116 barge trips taking place over a 15 month construction period. The maximum daily truck trips that would occur during construction would be 98 trips per day.

To mitigate indirect impacts associated with construction traffic, the Convair Lagoon Alternative would implement a Parking Management Plan, as outlined in Section 4.1, Traffic, of this EIR and a Traffic Control Plan as outlined in Section 4.3, Hazards and Hazardous Materials, of this EIR. Furthermore, the Convair Lagoon Alternative would implement mitigation measure 4.6.1, outlined in Section 4.6, Air Quality, of this EIR, which requires construction activities to be timed so as not to interfere with peak hour traffic and to minimize obstructions of traffic lanes. Implementation of these mitigation measures would ensure that the alternative would not result in inadequate emergency access during construction. Upon completion of construction, the Convair Lagoon Alternative site would consist of an above-ground, undeveloped, paved parcel of land. No vehicular trips or structures would be associated with operation of the Convair Lagoon Alternative, which could result in inadequate emergency access. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Construction of the Convair Lagoon Alternative may result in the temporary closure of the bicycle path located immediately north of the site along Harbor Drive. However, this impact would be temporary in nature and the bicycle path would re-open upon completion of construction. No permanent impacts to the bicycle route would occur as a result of the alternative. In addition, the alternative would not conflict with policies, plans or programs adopted for other modes of alternative transportation, such as buses, trolleys/trains, or pedestrian paths because the construction activities would not occur in public rights-of-way where these facilities area located. Therefore, the Convair Lagoon Alternative would not conflict with adopted policies, plans or programs supporting alternative transportation. No impact would occur and no further analysis is required.

Utilities and Service Systems

Would the Convair Lagoon Alternative exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require wastewater treatment. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or wastewater infrastructure. The Convair Lagoon Alternative would not create any wastewater treatment demand and would therefore not exceed the wastewater treatment requirements of the San Diego Water Board. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative 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?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require new water facilities or wastewater treatment facilities. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or wastewater infrastructure. The Convair Lagoon Alternative would not create any water or wastewater demand and would not require or result in the construction of new water or wastewater facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As part of the Convair Lagoon Alternative, two on-site storm drains would be extended. The environmental impacts associated with the expansion of these facilities are evaluated in the various environmental topics within Section 5.10 of this analysis.

Would the Convair Lagoon Alternative have sufficient water supplies available to serve the Convair Lagoon Alternative from existing entitlements and resources, or are new or expanded entitlements needed?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require water supplies. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or water infrastructure. The alternative would not require the provision of a potable water supply. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative result in a determination by the wastewater treatment provider which serves or may serve the Convair Lagoon Alternative that it has adequate capacity to serve the Convair Lagoon Alternative's demand in addition to the provider's existing commitments?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would require wastewater treatment. Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures or wastewater infrastructure. The alternative would not require the provision of wastewater facilities. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative be served by a landfill with sufficient permitted capacity to accommodate the Convair Lagoon Alternative's solid waste disposal needs?

The Convair Lagoon Alternative would not create any residential, commercial, industrial or institutional development that would generate solid waste or impact landfill capacity because of its operational characteristics. The project would involve demolition of existing facilities at the Convair Lagoon site; however, these materials would be placed in the CDF created by this alternative. This alternative would also generate approximately 21,510 yards of contaminated sediment that would be exported to the Kettleman Hills Landfill located near Kettleman City, California. The Kettleman Hills Landfill currently has capacity to accommodate this material. In addition, "The Kettleman Hills Landfill is currently proposing an expansion project to increase its hazardous waste operations. The proposed expansion would increase the capacity at the existing hazardous waste landfill and would construct a new hazardous waste landfill once the currently open landfill has reached its capacity.

Implementation of this project would ensure long-term hazardous waste disposal capacity at the facility for an additional 30 to 35 years (WM, 2011)."

Upon completion of construction, the site would consist of an undeveloped, above-ground, paved parcel of land with no structures. Operation of the alternative would not generate solid waste or reduce landfill capacity. Therefore, no impact would occur and no further analysis is required.

Would the Convair Lagoon Alternative comply with federal, state, and local statutes and regulations related to solid waste?

The Convair Lagoon Alternative would comply with federal, state, and local statutes and regulations related to solid waste through the testing of contaminated sediment dredged from the Shipyard Sediment site to ensure that only the sediments with high levels of contamination would be exported to the Kettleman Hills Landfill, with the remaining sediments transported to the CDF at Convair Lagoon.

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ATKINS

LEGEND

Convair Alternative Site Boundary

Scenic Vista Point

0 750 1,500

FEET

SOURCE: SanGIS 2011

Note: Directions, dimensions and locations are approximate.

FIGURE 5-14

Convair Lagoon Alternative

Port Master Plan Scenic Vistas in the Vicinity of the Convair Lagoon Alternative Site

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