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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 Drive 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 delivery 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		Δ	PM Peak Hour		Δ	
		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).

Δ = 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	Δ
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).

Δ = 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		Δ	PM Peak Hour		Δ
			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).

Δ = 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	Δ
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).

Δ = 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		Δ	PM Peak Hour		Δ
			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).

Δ = 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	Δ
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).

Δ = 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		Δ	PM Peak Hour		Δ
			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).

Δ = 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	Δ
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).

Δ = 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		Δ	PM Peak Hour		Δ	
		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).

Δ = 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	Δ
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).

Δ = 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 truck 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 years¹ (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.

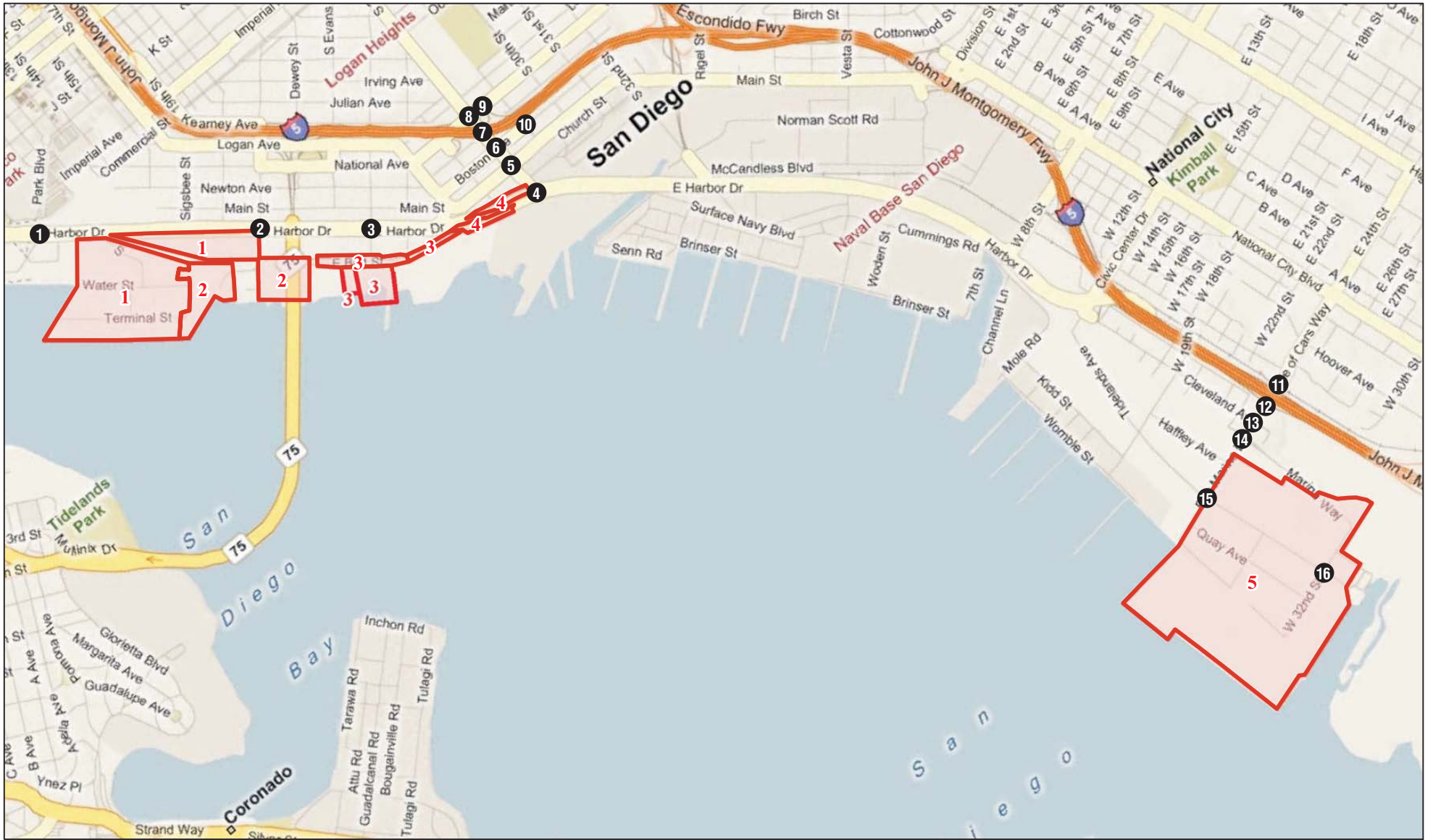


FIGURE 4.1-1

LSA

LEGEND

- Potential Sediment Staging Areas
- 4 Study Area Intersection



SOURCE: Bing Maps (2008)

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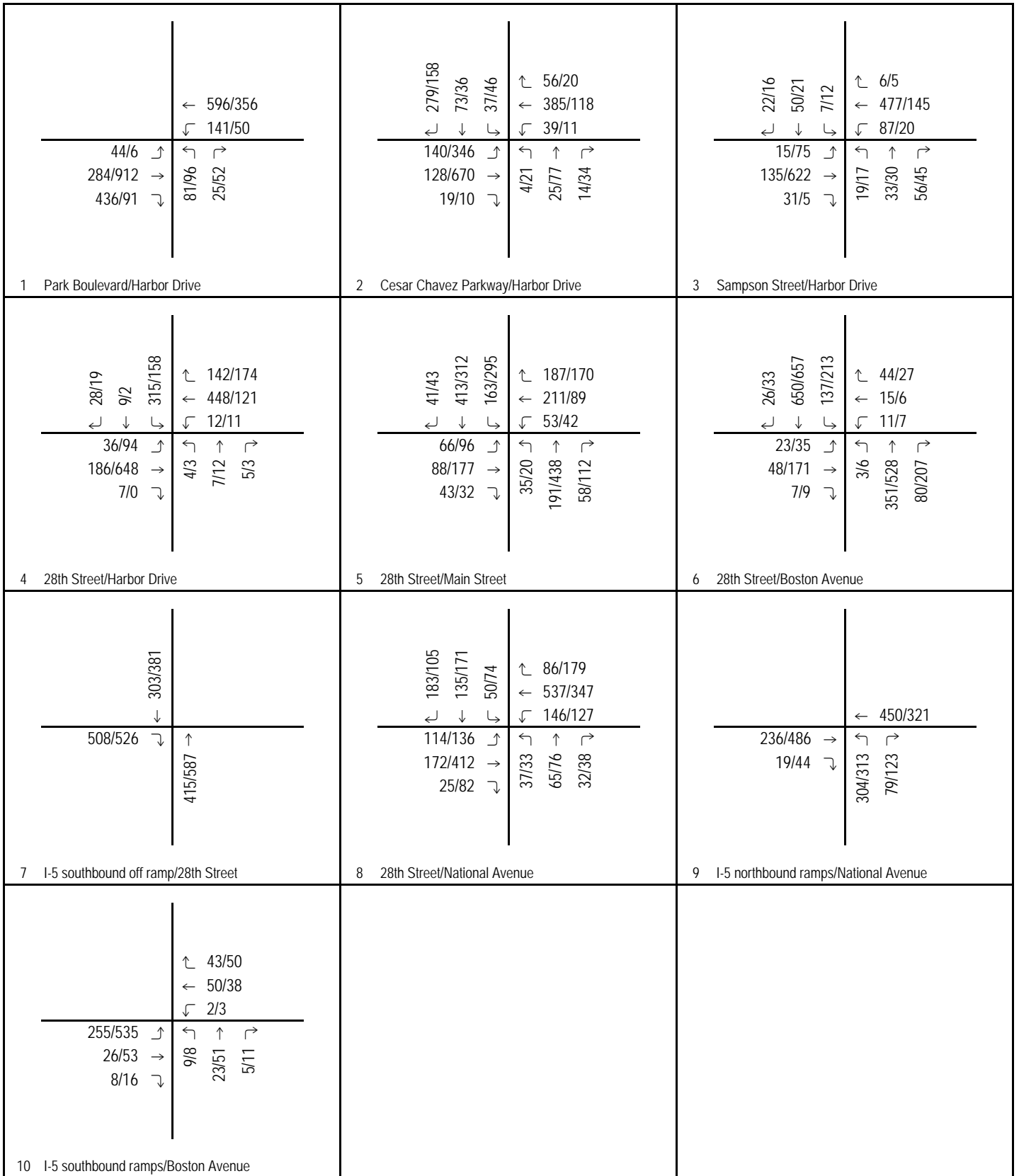


FIGURE 4.1-2A

LSA

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project
Existing Peak Hour Intersection Traffic Volumes (City of San Diego Locations)

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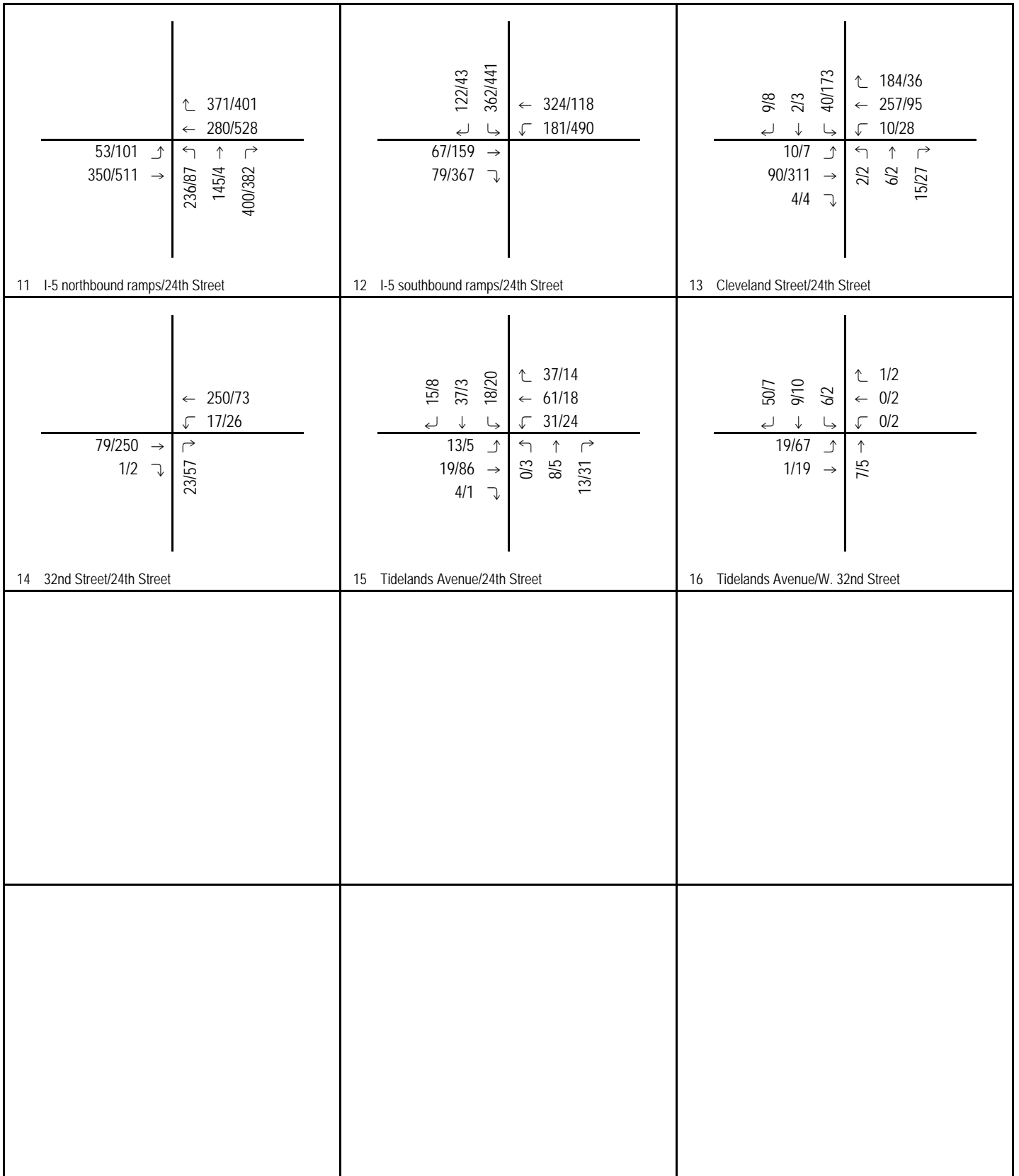


FIGURE 4.1-2B

LSA

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project
Existing Peak Hour Intersection Traffic Volumes (City of National City Locations)

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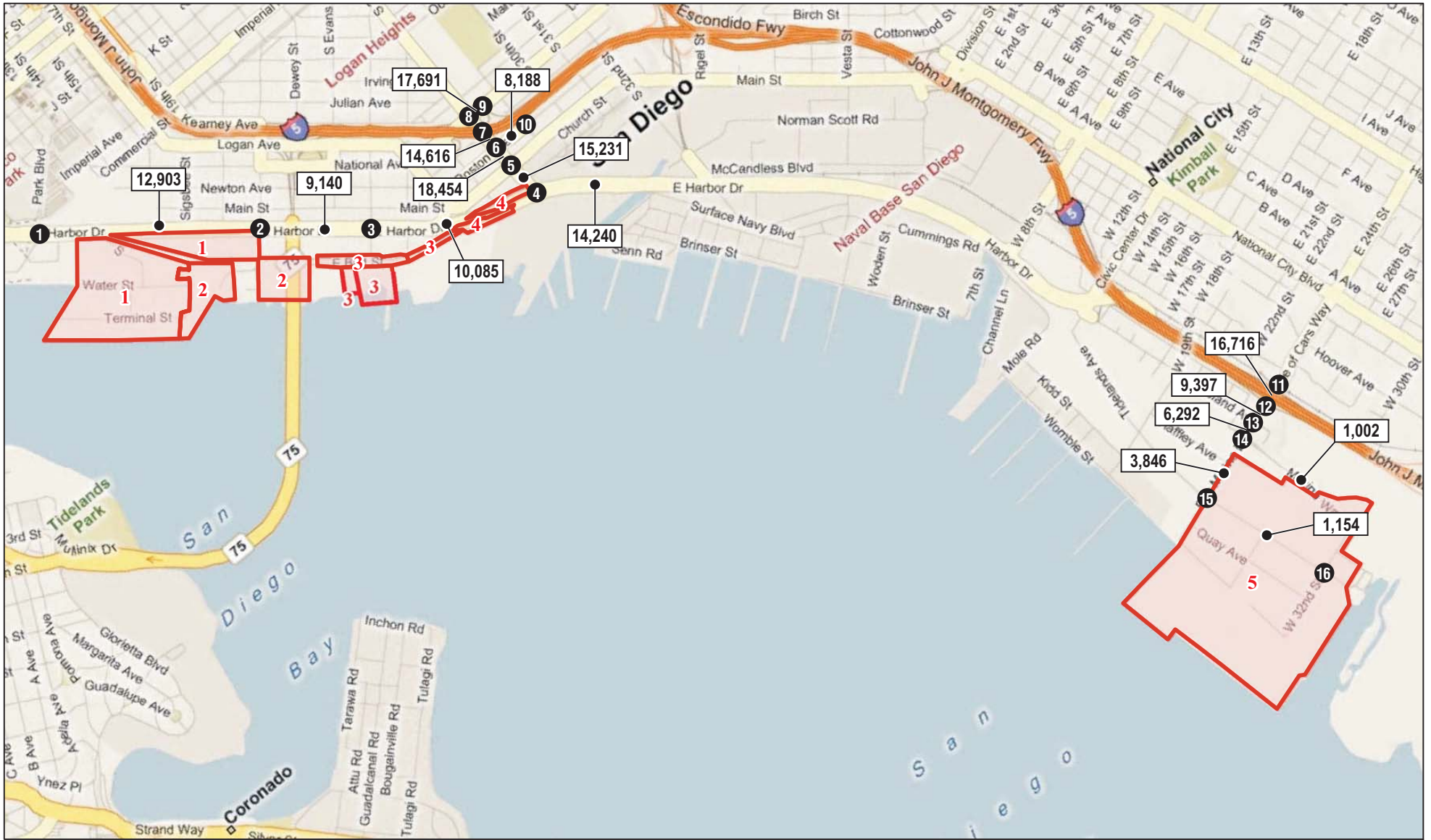


FIGURE 4.1-3

LSA

LEGEND

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



SOURCE: Bing Maps (2008)

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Shipyards Sediment Remediation Project
Existing Average Daily Trips in Study Area

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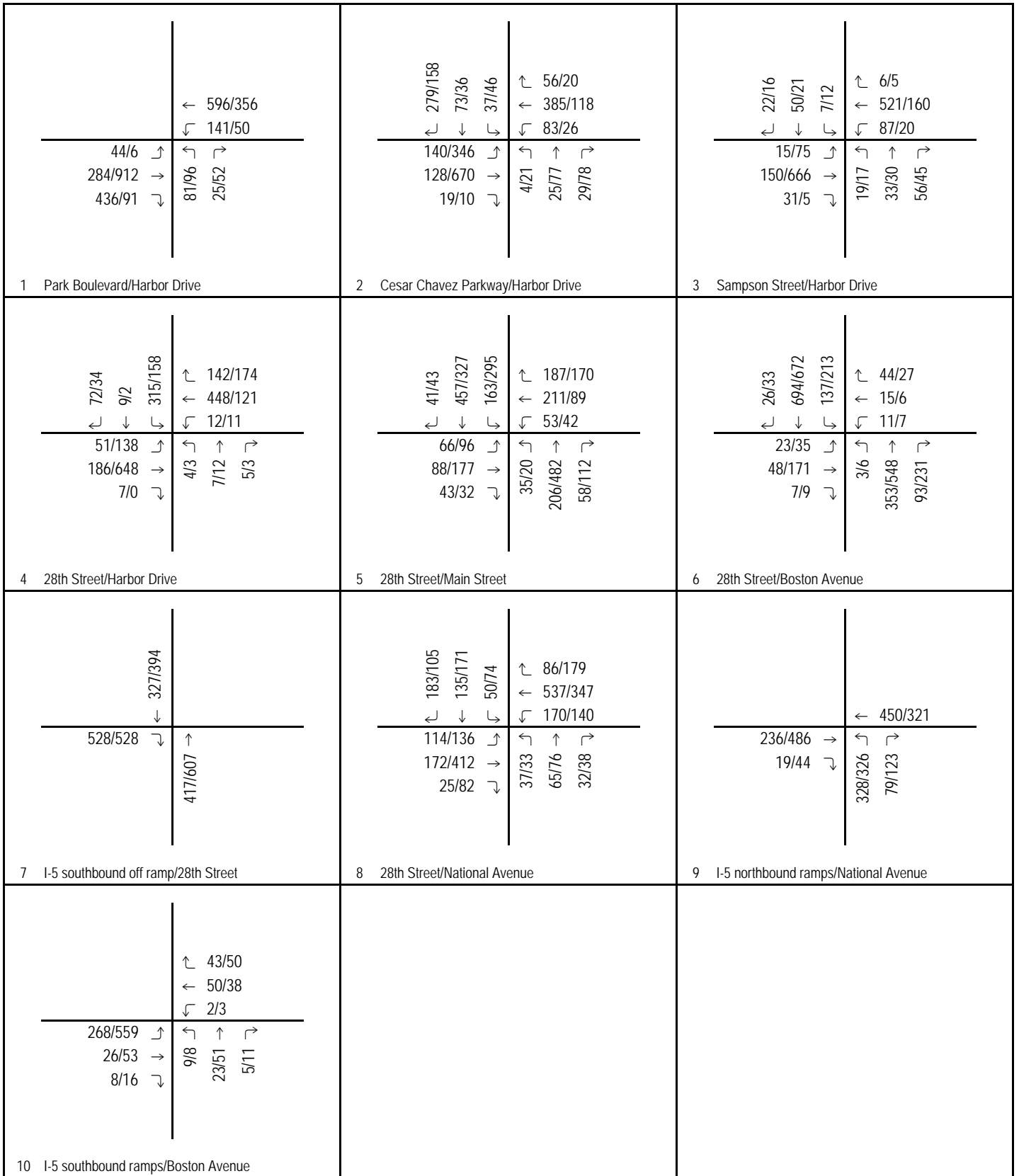


FIGURE 4.1-4

LSA

123/456 AM/PM Volumes

Shipyard Sediment Remediation Project
Existing + Project Peak Hour Intersection Traffic Volumes (Staging Areas I & 2)

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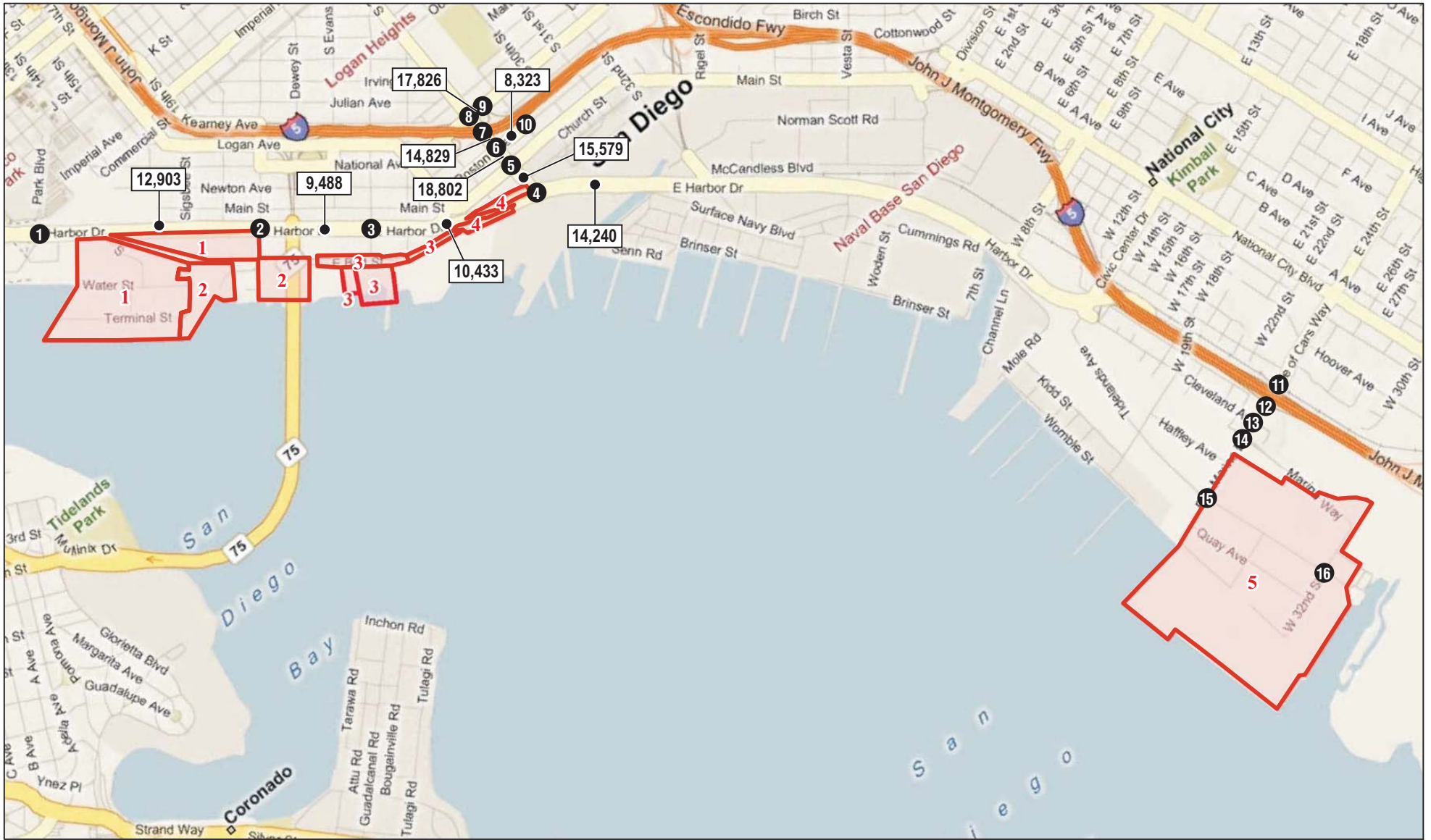


FIGURE 4.1-5

LSA

LEGEND

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



SOURCE: Bing Maps (2008)

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

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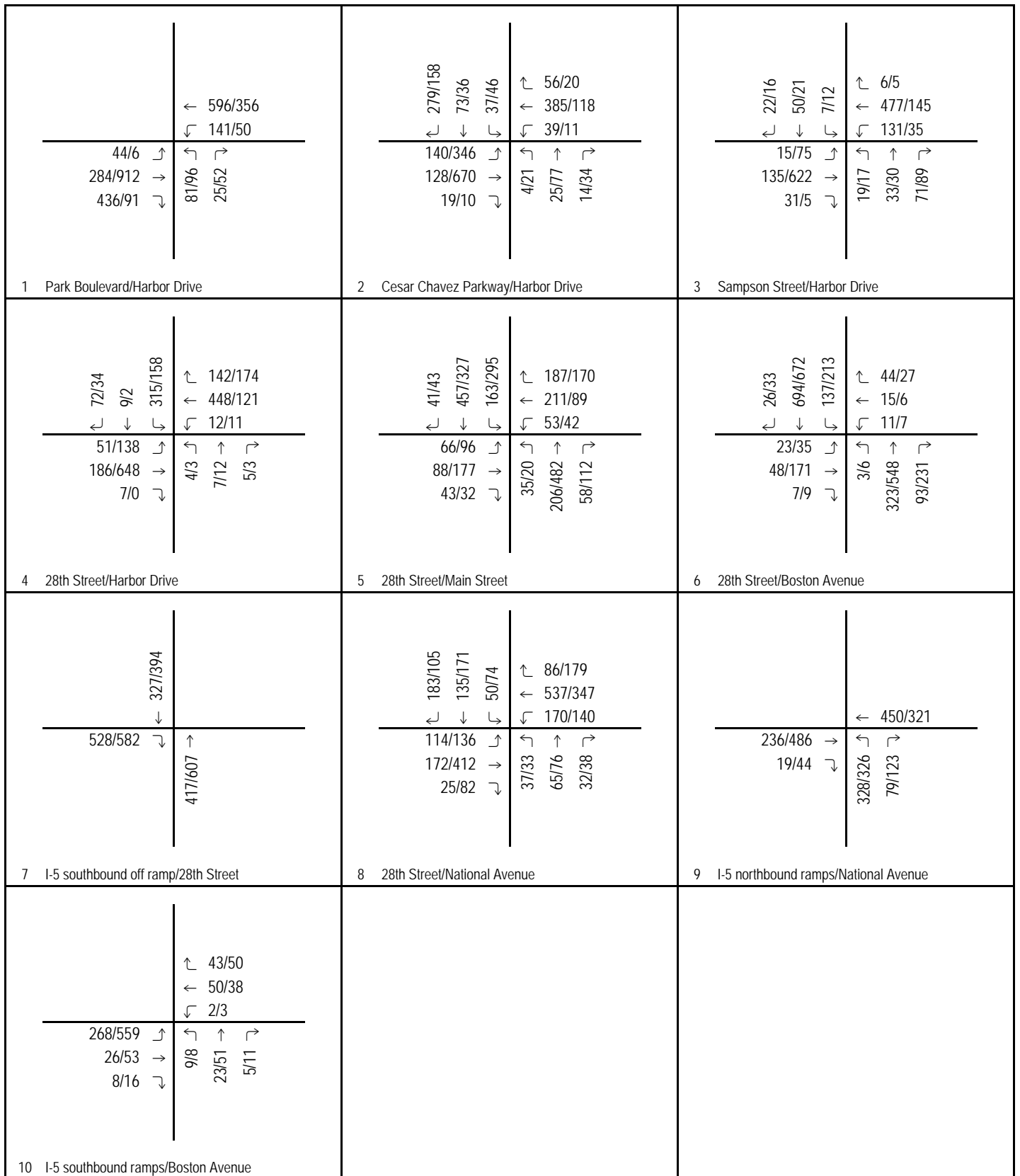


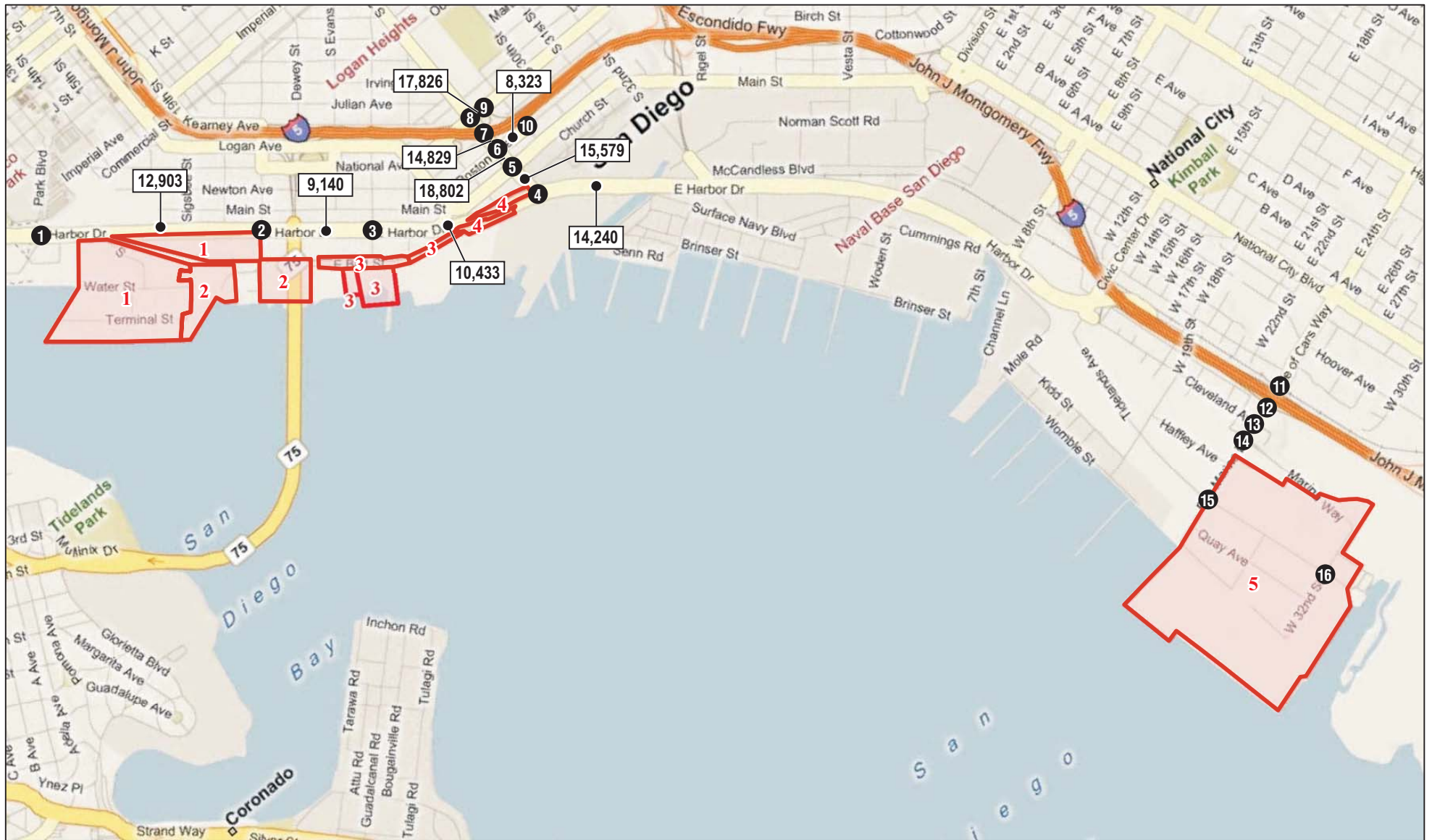
FIGURE 4.1-6

LSA

123/456 AM/PM Volumes

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

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LSA

LEGEND

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



SOURCE: Bing Maps (2008)

I:\SWB1001\G\EIR\Existing+Proj ADT-Area 3.cdr (5/26/2011)

FIGURE 4.1-7

Shipyard Sediment Remediation Project
Existing Plus Project Average Daily Traffic Volumes
Staging Area 3

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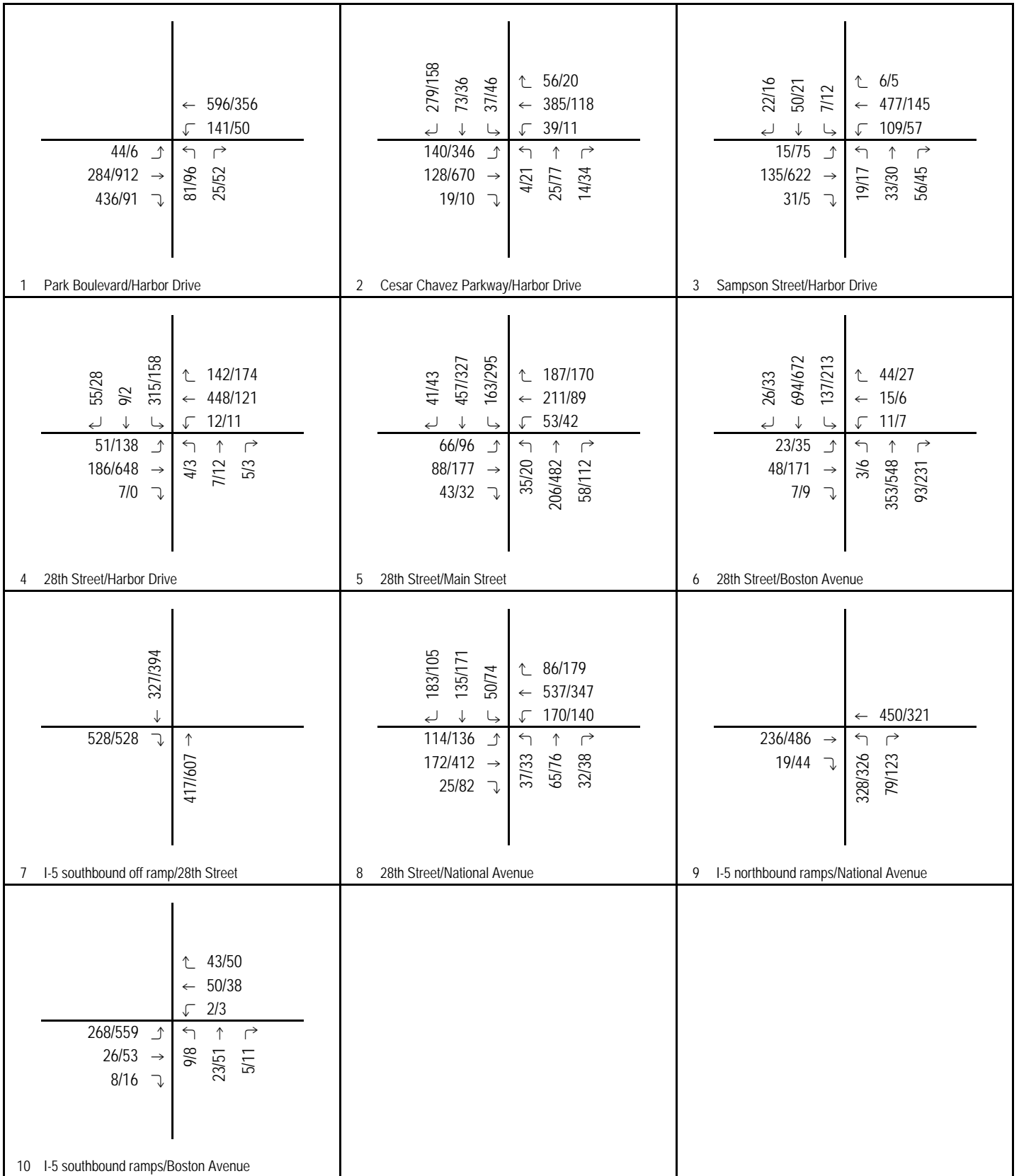


FIGURE 4.1-8

LSA

123/456 AM/PM Volumes

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

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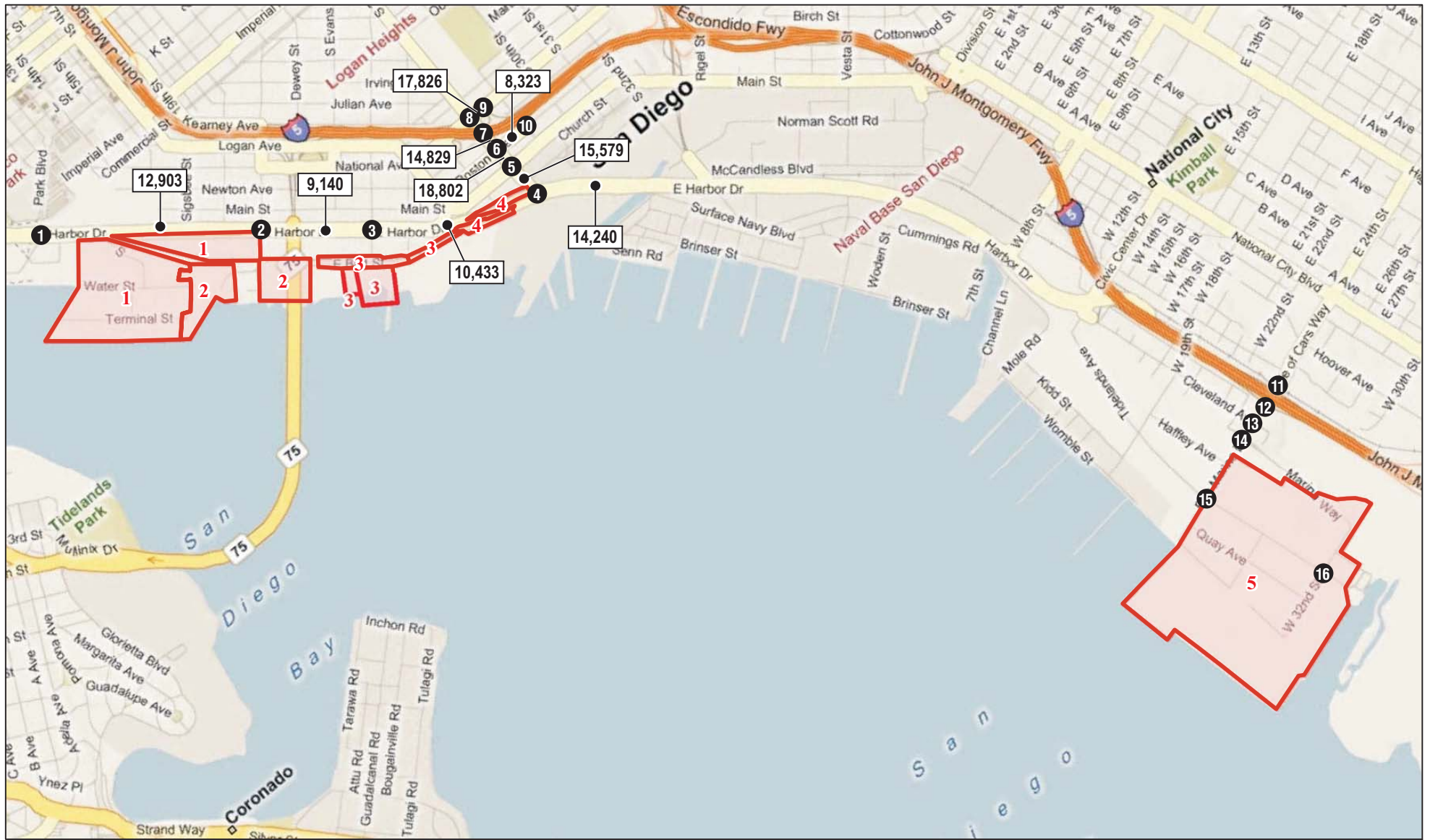
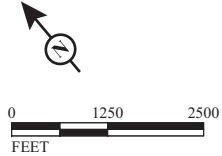


FIGURE 4.1-9

LSA

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



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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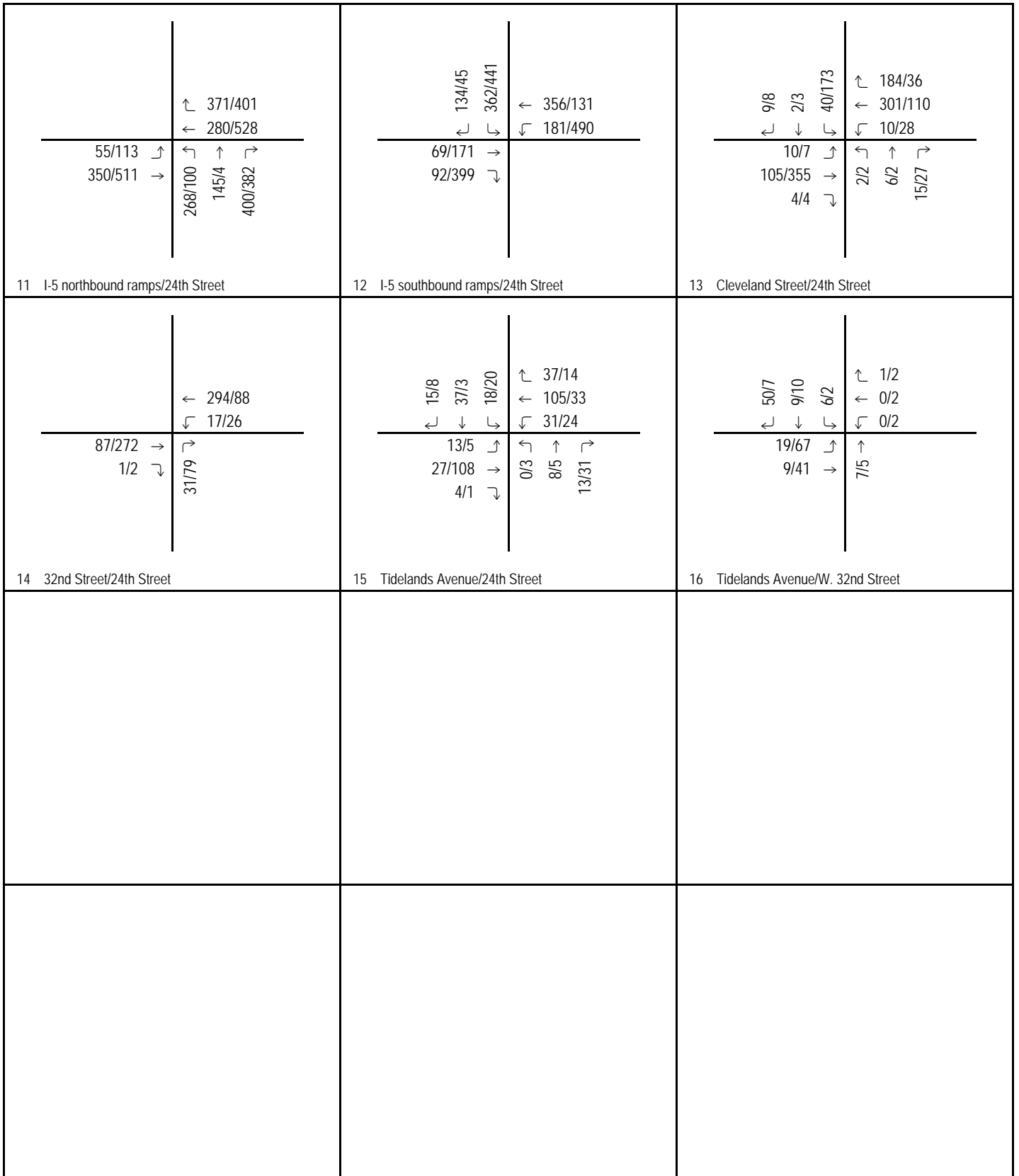


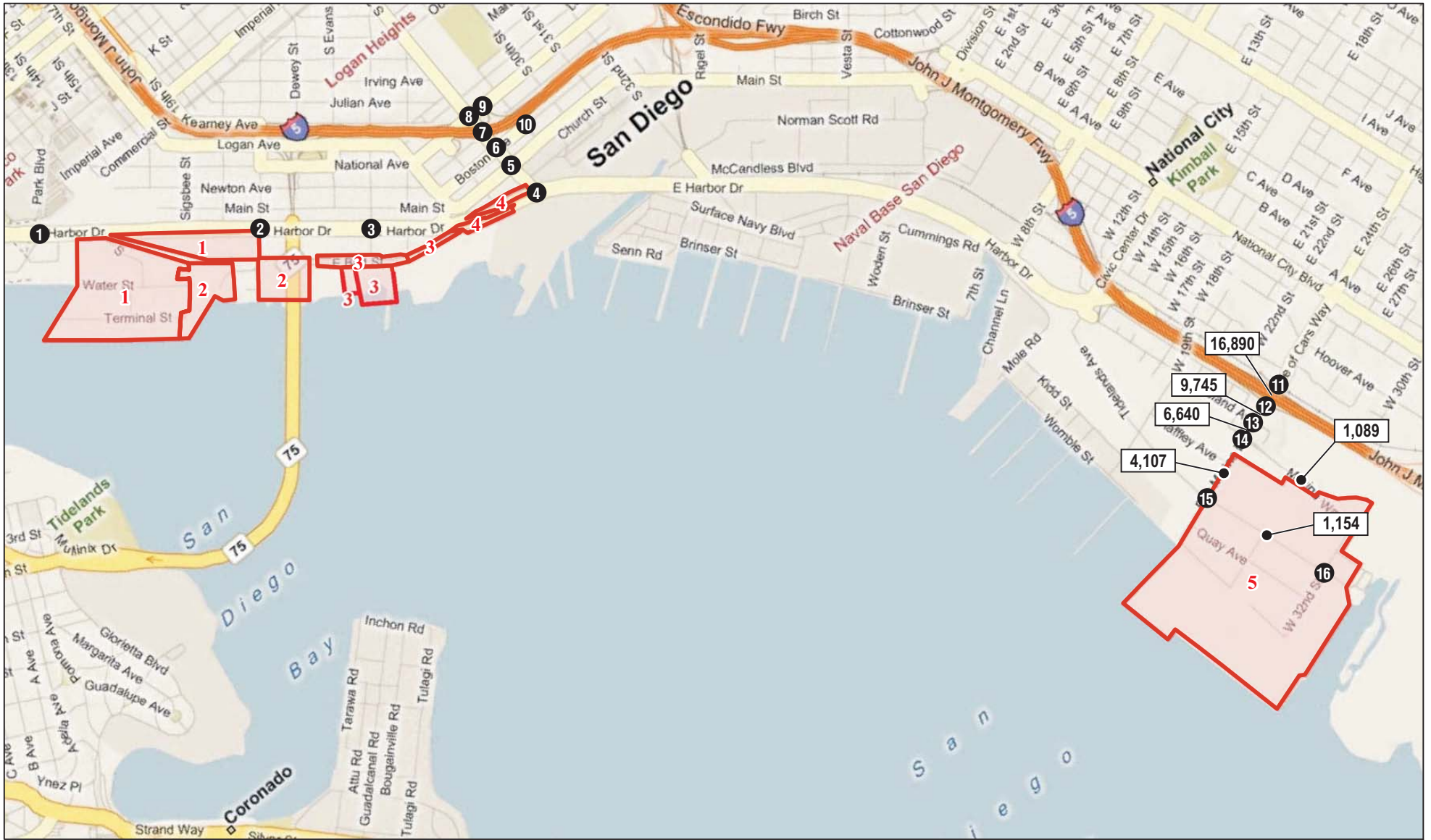
FIGURE 4.1-10

LSA

123/456 AM/PM Volumes

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

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LSA

LEGEND

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



SOURCE: Bing Maps (2008)

I:\SWB1001\G\EIR\Existing+Proj ADT-Area 5.cdr (5/26/2011)

FIGURE 4.1-11

Shipyard Sediment Remediation Project
Existing Plus Project Average Daily Traffic Volumes
Staging Area 5

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San Diego

BAYSHORE

BIKEWAY



- BIKE PATH
- ON-STREET LANE/ROUTE
- - - CURRENT PROJECTS



LSA

FIGURE 4.1-12

Shipyard Sediment Remediation Project
Bayshore Bikeway

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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	<p>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.</p> <p>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.</p> <p>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.</p> <p>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).</p>
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	<p>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.</p> <p>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.</p>

Table 4.2-1: Water Quality Objectives

Constituent	Objective
Color	<p>Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.</p> <p>The natural color of fish, shellfish or other resources in inland surface waters, coastal lagoon or bay and estuary shall not be impaired.</p>
Dissolved Oxygen	<p>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.</p>
Floating Materials	<p>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.</p>
Oil and Grease	<p>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.</p>
Pesticides	<p>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.</p>
pH	<p>Changes in normal ambient pH levels shall not exceed 0.2 units in waters with designated MAR, EST, or SAL beneficial uses.</p> <p>In bays and estuaries, the pH shall not be depressed below 7.0 nor raised above 9.0.</p>
Radioactivity	<p>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.</p>
Sediment	<p>Waters shall not contain suspended or settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses.</p>
Suspended and Settleable Solids	<p>Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses.</p>
Taste and Odor	<p>Waters shall not contain taste or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses.</p>
Temperature	<p>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.</p>
Toxicity	<p>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.</p> <p>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).</p>

Table 4.2-1: Water Quality Objectives

Constituent	Objective								
Turbidity	<p>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:</p> <table border="1" data-bbox="526 667 1422 814"> <thead> <tr> <th data-bbox="526 667 824 703">Natural Turbidity</th> <th data-bbox="824 667 1422 703">Maximum Increase</th> </tr> </thead> <tbody> <tr> <td data-bbox="526 703 824 739">0-50 NTU</td> <td data-bbox="824 703 1422 739">20% over natural turbidity level</td> </tr> <tr> <td data-bbox="526 739 824 774">50-100 NTU</td> <td data-bbox="824 739 1422 774">10 NTU</td> </tr> <tr> <td data-bbox="526 774 824 810">Greater than 100 NTU</td> <td data-bbox="824 774 1422 810">10% over natural turbidity level</td> </tr> </tbody> </table> <p>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.</p>	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
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								

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 identified 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 si cle, 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 overflowing 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 Cities 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 be 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 Publicly 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 [HAPAHs], 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 fence line 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 overflow.

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.

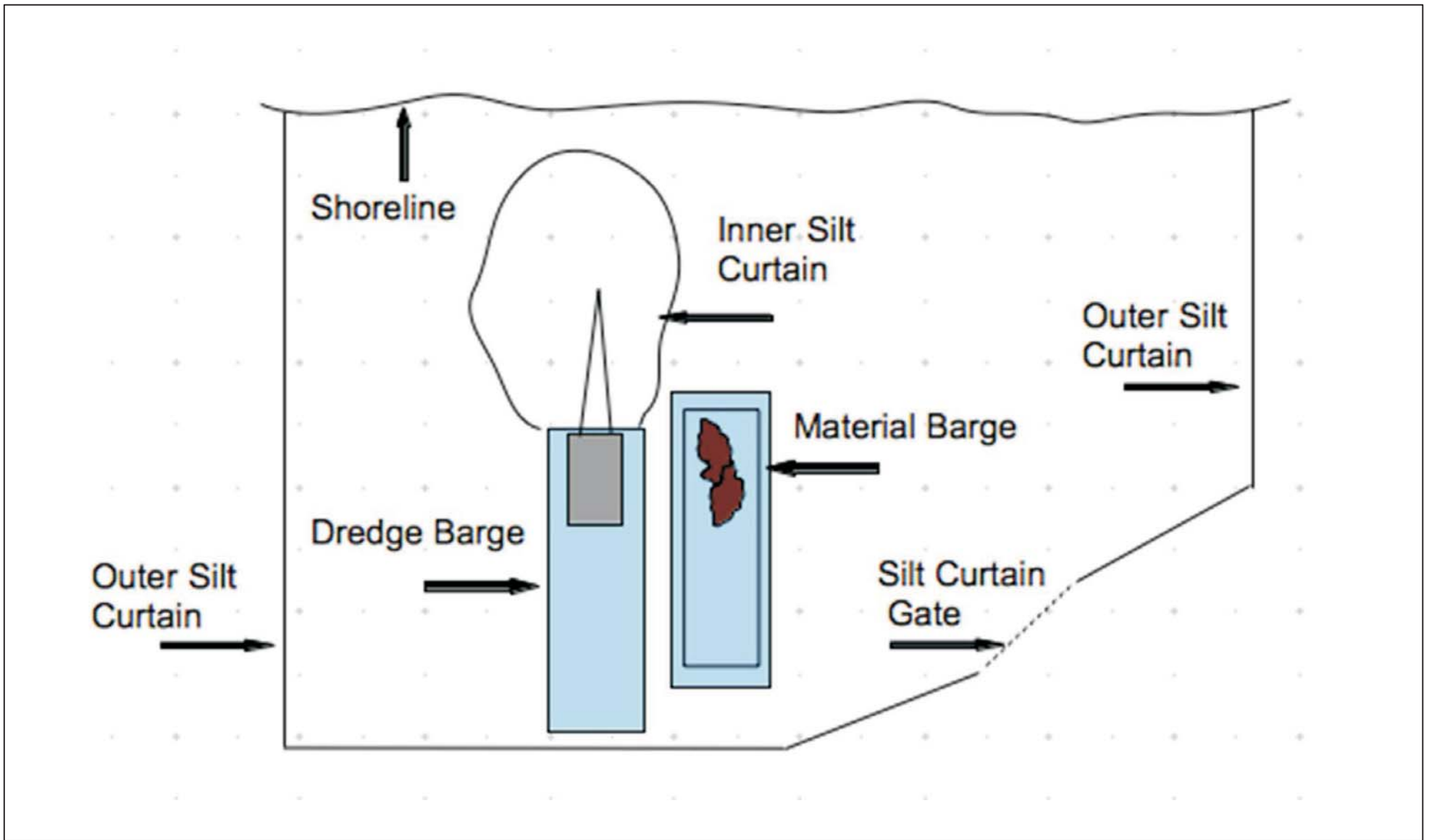
With implementation of Mitigation Measures 4.3.1 through 4.3.8 for project impacts and Mitigation Measure 4.2.14 for cumulative impacts, the impacts of the proposed project in

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.

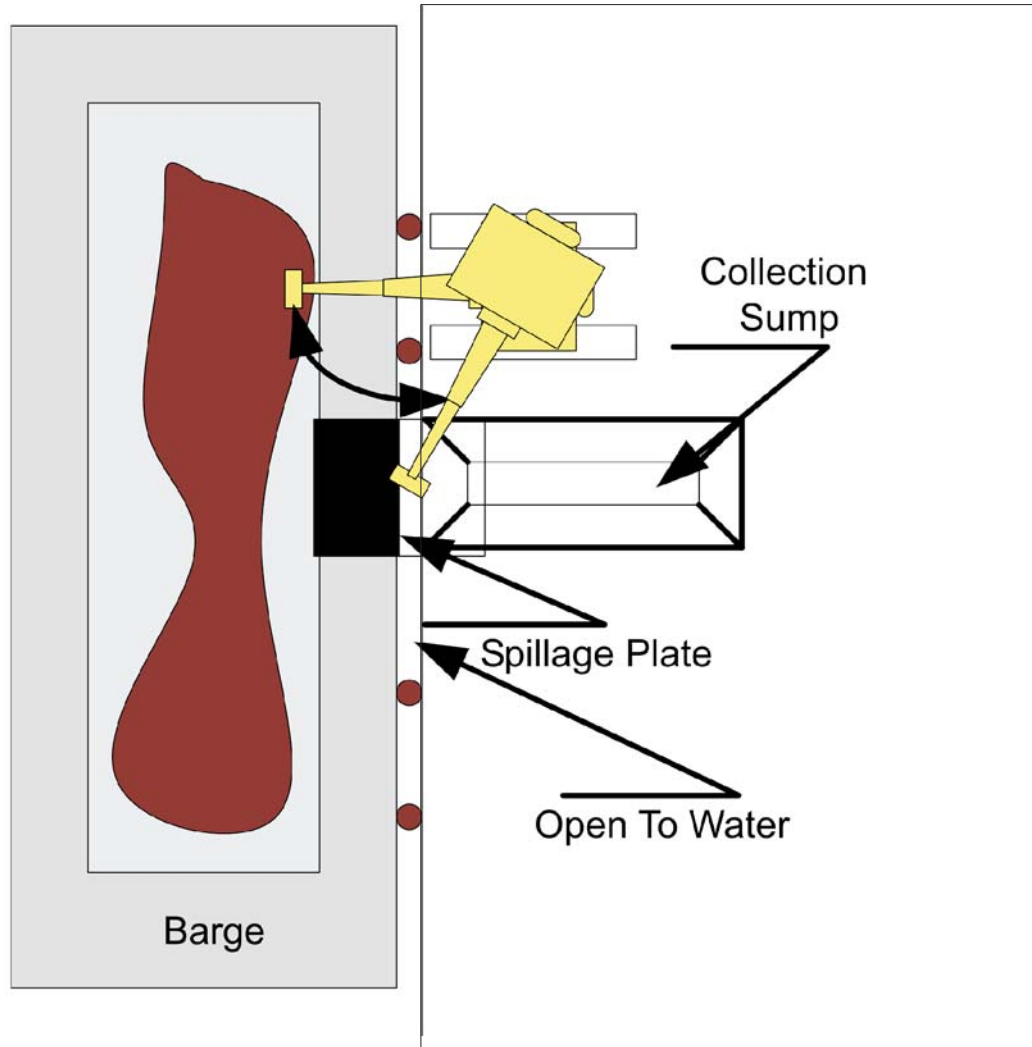
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FIGURE 4.3-1

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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.

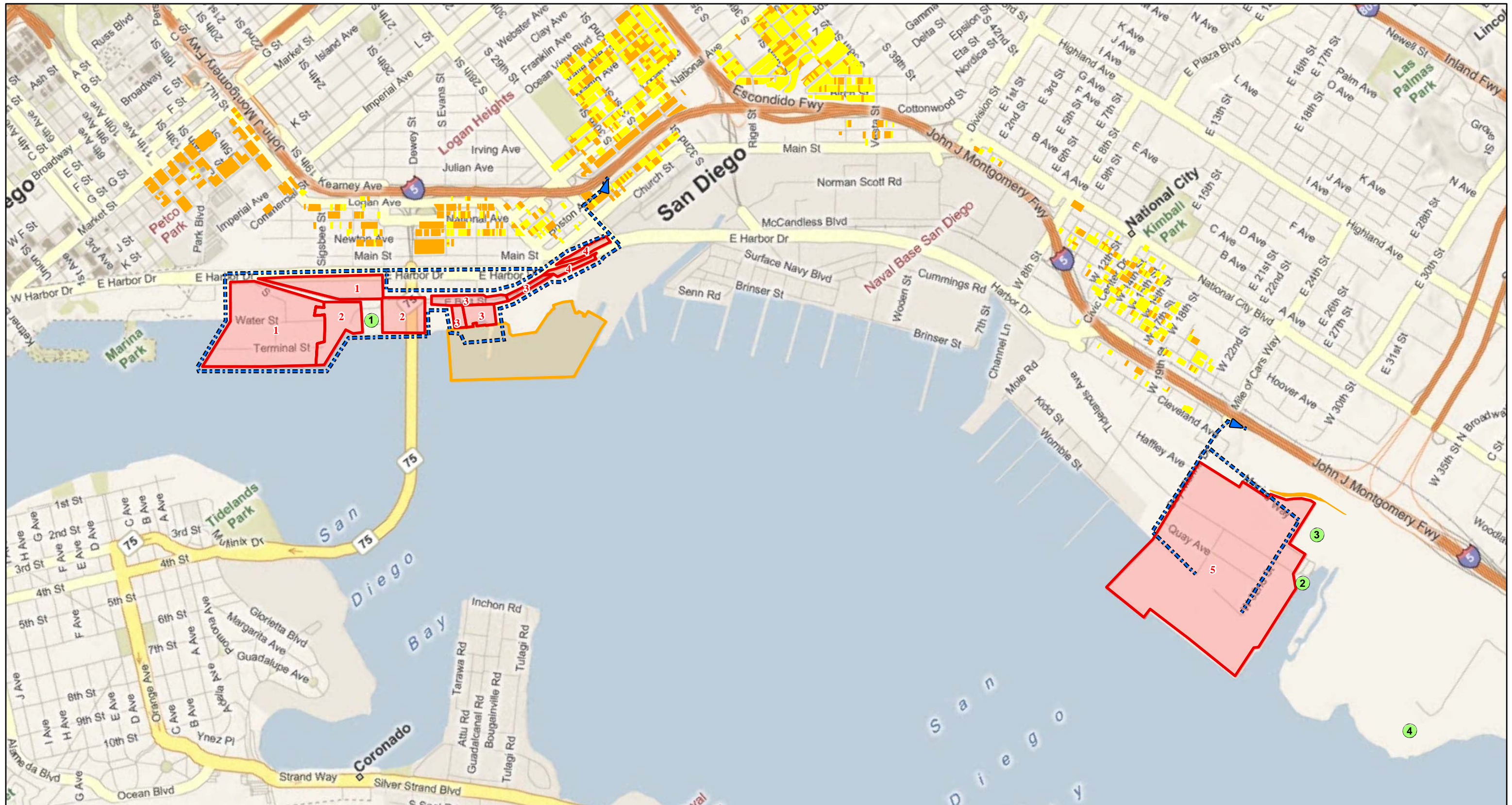
The San Diego Unified Port website identifies a few key projects to be implemented over several years. These projects are listed in Section 4.1, Transportation and Circulation, of this PEIR and include:

- 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.



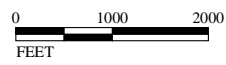
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LEGEND

- 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



SOURCE: Bing Maps (c.2008), SanGIS (2008)
 I:\SWB1001\GIS\Nearby_Land_Uses.mxd (5/18/2011)

Figure 4.4-1

Shipyard Sediment Remediation Project
 Nearby Land Uses

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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
<i>Atherinops affinis</i>	topsmelt
<i>Atherinopsis californiensis</i>	jacksmelt
<i>Leuresthes tenuis</i>	California grunion
<i>Hippoglossina stomata</i>	bigmouth sole
<i>Xystreurus liolepis</i>	fantail sole
<i>Caranx caballus</i>	green jack
<i>Caranx hippos</i>	crevalle jack
<i>Trachurus symmetricus</i>	jack mackerel
<i>Chanos chanos</i>	milkfish
<i>Clupea pallasii</i>	Pacific herring
<i>Sardinops sagax caeruleus*</i>	Pacific sardine
<i>Scorpaena guttata</i>	sculpin
<i>Scorpaenichthys marmoratus</i>	cabazon
<i>Amphistichus argenteus</i>	barred surfperch
<i>Cymatogaster aggregata</i>	shiner surfperch
<i>Damalichthys vacca</i>	pile surfperch
<i>Embiotoca jacksoni</i>	black surfperch
<i>Hyperprosopon argenteum</i>	walleye surfperch
<i>Micrometrus minimus</i>	dwarf surfperch
<i>Phanerodon furcatus</i>	white surfperch
<i>Rhacochilus toxotes</i>	rubberlip surfperch
<i>Engraulis mordax*</i>	northern anchovy
<i>Girella nigricans</i>	opaleye
<i>Mugil cephalus*</i>	striped mullet
<i>Hypsopsetta guttulata</i>	diamond turbot
<i>Paralichthys californicus*</i>	California halibut
<i>Platichthys stellatus</i>	starry flounder
<i>Parophrys vetulus*</i>	English sole
<i>Pleuronichthys coenosus</i>	C-O turbot
<i>Pleuronichthys ritteri</i>	spotted turbot
<i>Pleuronichthys verticalis</i>	hornyhead turbot
<i>Cheilotrema saturnum</i>	black croaker
<i>Atractoscion nobilis*</i>	white seabass
<i>Genyonemus lineatus</i>	white croaker
<i>Menticirrhus undulatus</i>	California corbina
<i>Roncador stearnsii</i>	spotfin croaker
<i>Seriphus politus</i>	queenfish
<i>Umbrina roncadore</i>	yellowfin croaker
<i>Sarda chiliensis</i>	Pacific bonito
<i>Scomber japonicas</i>	Pacific mackerel
<i>Scomberomorus sierra</i>	sierra
<i>Medialuna californiensis</i>	halfmoon
<i>Morone saxatilis</i>	striped bass
<i>Paralabrax clathratus*</i>	kelp bass
<i>Paralabrax maculatofasciatus</i>	spotted sand bass

Table 4.5-1: Fish Species of San Diego Bay Taken by Recreational and Commercial Fishermen

Scientific Name	Common Name
<i>Paralabrax nebulifer</i>	barred sand bass
<i>Sphyraena argentea</i>	California barracuda
<i>Albula vulpes</i>	bonefish
<i>Cynoscion parvipinnis</i>	shortfin corvine
Chondrichthyes	Sharks and Rays
<i>Carcharhinus brachyurus</i>	narrowtooth shark
<i>Galeorhinus zyopterus</i>	soupsfin shark
<i>Mustelus californicus</i>	gray smoothhound
<i>Mustelus henlei</i>	brown smoothhound
<i>Mustelus lunulatus</i>	sicklefin smoothhound
<i>Prionace glauca</i>	blue shark
<i>Triakis semifasciata</i>	leopard shark
<i>Sphyrna zygaena</i>	smooth hammerhead shark
<i>Squalus acanthias</i>	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 FMP¹ 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	<i>Engraulis mordax</i>
Pacific sardine	<i>Sardinops sagax</i>
Pacific mackerel	<i>Scomber japonicus</i>
Jack mackerel	<i>Trachurus symmetricus</i>
Pacific Groundfish FMP	
California scorpionfish	<i>Scorpaena gutatta</i>
English sole	<i>Parophrys vetulus</i>

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 (CNDDDB) 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 CNDDDB. However, the CNDDDB 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/biogodata/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				
<i>Onchorynchus mykiss irideus</i> 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.
<i>Eucyclogobius newberryi</i> 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.
<i>Paralichthys californicus</i> 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				
<i>Chelonia mydas</i> 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				
<i>Accipiter cooperii</i> (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.
<i>Athene cunicularia</i> (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.
<i>Branta bernicla</i> (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
<i>Calypte costae</i> (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.
<i>Charadrius alexandrinus nivosus</i> (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.
<i>Circus cyaneus</i> (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.
<i>Eremophila alpestris actia</i> 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
<i>Falco peregrinus anatum</i> (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.
<i>Lanius ludovicianus</i> (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.
<i>Pandion haliaetus</i> (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.
<i>Passerculus sandwichensis beldingi</i> 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
<i>Pelecanus occidentalis</i> (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.
<i>Phalacrocorax auritus</i> (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.
<i>Rallus longirostris levipes</i> 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. CNDDDB 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.
<i>Rynchops niger</i> (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
<i>Sterna nilotica</i> (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.
<i>Sternula antillarum browni</i> (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.
<i>Thalasseus elegans</i> (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				
<i>Tursiops truncatus</i> 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)				
<i>Phoca vitulina</i> 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.
<i>Zalophus californianus</i> 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.
<i>Antrozous pallidus</i> 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. CNDDDB 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.
<i>Choeronycteris Mexicana</i> 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. CNDDDB 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.
<i>Eumops perotis</i> 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. CNDDDB 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.
<i>Lasionycteris noctivagans</i> 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. CNDDDB 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.
<i>Lasiurus blossevillii</i> 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. CNDDDB 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.
<i>Lasiurus cinereus</i> 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. CNDDDB 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.
<i>Lasiurus xanthinus</i> 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. CNDDDB 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.
<i>Myotis yumanensis</i> 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. CNDDDB 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
<i>Nyctinomops femorosaccus</i> 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. CNDDDB 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.
<i>Nyctinomops macrotis</i> 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. CNDDDB 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.
<i>Corynorhinus townsendii</i> 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 CNDDDB 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 CNDDDB regardless of its legal or protection status.
- SP Special Plant. Refers to taxon of concern to the CNDDDB 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)	
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • CWA, as amended • National Environmental Policy Act (NEPA) • MPRSA of 1972 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • Fish and Wildlife Coordination Act • Federal Endangered Species Act (FESA) • Migratory Bird Treaty Act (MBTA) • National Wildlife Refuge System Administration Act • NEPA 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • Fish and Wildlife Coordination Act • FESA • Magnuson-Stevens Fishery Conservation and Management Act (MSA) 	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Marine Mammal Protection Act (MMPA) • NEPA 	<p>green sea turtle (outside of beach nesting sites).</p> <ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • California Coastal Act (Coastal Act) • Federal Coastal Zone Management Act (CZMA) • Federal Coastal Zone Act Reauthorization Amendments (CZARA) • California Environmental Quality Act (CEQA) 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • Public Trust Doctrine • Public Resources Code (PRC) • CEQA 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • Clean Water Act (CWA) • Porter-Cologne Water Quality Control Act (Porter-Cologne Act) • California Water Code • CZARA • CEQA 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • Federal CWA, Sections 401, 402 • Porter-Cologne Act • CEQA 	<ul style="list-style-type: none"> • 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)	
<ul style="list-style-type: none"> • Various pesticide regulations 	<ul style="list-style-type: none"> • Regulates antifouling paints used on boats and ships.
California Department of Parks and Recreation (State Parks)	
<ul style="list-style-type: none"> • PRC • CEQA 	<ul style="list-style-type: none"> • 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
<p>San Diego Unified Port District</p> <ul style="list-style-type: none"> • State Port District Act • Port Master Plan • Port Ordinances/Code • California Coastal Act • California Environmental Quality Act (CEQA) 	<ul style="list-style-type: none"> • 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	
Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • United States Coast Guard (USCG) • ANSTF
Executive Order 13112 (EO 13112), 1999	<ul style="list-style-type: none"> • National Invasive Species Council (NISC), co-chaired by secretaries of Agriculture, Commerce, and Interior; members also include secretaries of State, Defense, Homeland Security, Treasury, 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	<ul style="list-style-type: none"> • USCG
Animal Damage Control Act (1931)	<ul style="list-style-type: none"> • United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS)
Animal Health Protection Act	<ul style="list-style-type: none"> • USDA APHIS
Federal Clean Water Act (CWA)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • U.S. FWS • National Marine Fisheries Service (NMFS)
Lacey Act (1900; amended 1998)	<ul style="list-style-type: none"> • U.S. FWS
National Environmental Policy Act (NEPA)	<ul style="list-style-type: none"> • All federal agencies
Noxious Weed Act (1974)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • USDA

Table 4.5-7: Regulations Pertaining To Invasive Species

Regulation	Implementing Agency/Agencies
State Regulations	
California Environmental Quality Act (CEQA)	<ul style="list-style-type: none"> • All state and local agencies with discretionary project approval authority
Porter-Cologne Water Quality Control Act (Porter-Cologne Act)	<ul style="list-style-type: none"> • State Water Board • Regional Water Boards
California Fish and Game Code (Title 14 of the California Code of Regulations [CCR])	<ul style="list-style-type: none"> • California Department of Fish and Game (CDFG)
Harbors and Navigation Code, Article 2, Section 64	<ul style="list-style-type: none"> • California Department of Boating and Waterways
Ballast Management for Control of Nonindigenous Species Act (AB703) of 1999	<ul style="list-style-type: none"> • State Lands Commission (SLC)
Marine Invasive Species Act (AB433) of 2003	<ul style="list-style-type: none"> • SLC • CDFG
Coastal Ecosystems Protection Act of 2006	<ul style="list-style-type: none"> • SLC
California Ocean Protection Council Strategic Plan	<ul style="list-style-type: none"> • 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 NMFS, 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 to 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#1>, 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 (turions¹ 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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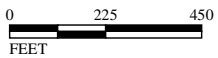


FIGURE 4.5-1

LSA

LEGEND

- Project Location
- Eelgrass Bed Location (NASSCO Site, 2002)
- Eelgrass Bed Location (BAE Systems Site, 2002)
- Eelgrass Bed (Observed at BAE Systems during 2010 survey)
- Bathymetry (10-ft intervals)



SOURCE: DigitalGlobe (2008), Geosyntec (2011)
 R:\SWB1001\GIS\Bathymetry_and_Eelgrass.mxd (5/23/2011)

Shipyard Sediment Remediation Project
 Bathymetry and Distribution of Eelgrass

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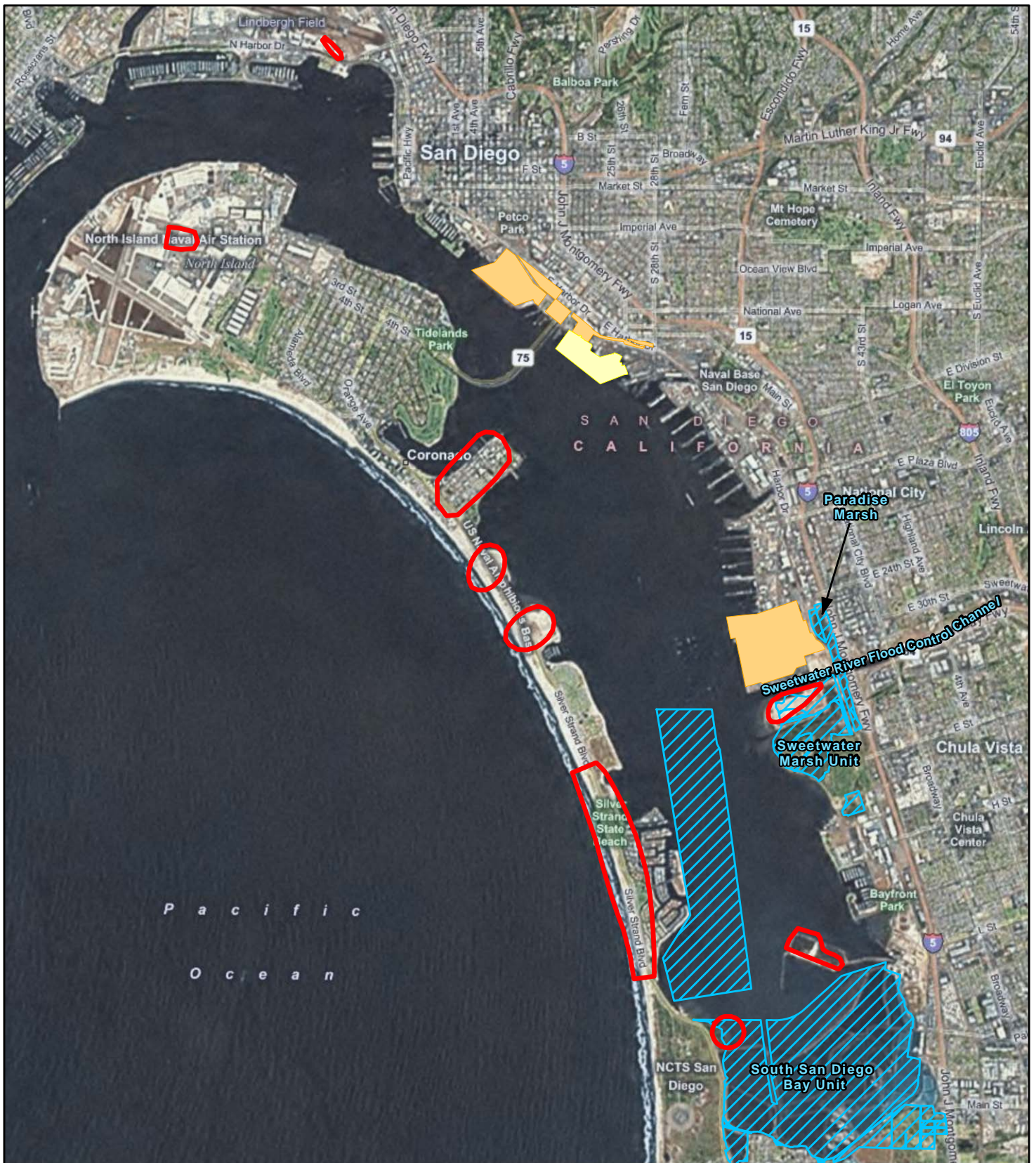
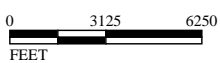


FIGURE 4.5-2

LSA

LEGEND

- Project Location
- Potential Staging Areas
- California Least Tern Nesting Location
- San Diego Bay National Wildlife Refuge



SOURCE: Bing Maps (c.2008), Geosyntec (2011), USFWS (2011)

R:\SWB1001\GIS\LeastTernsNesting.mxd (5/31/2011)

Shipyards Sediment Remediation Project
California Least Tern Nesting Locations

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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 (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than 10 microns in size (PM₁₀), 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 O₃, CO, NO₂, SO₂, and PM₁₀. 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, O₃, PM_{2.5}, and PM₁₀ 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: O₃, CO, oxides of nitrogen (NO_x) (including nitric oxide [NO] and NO₂), SO₂, PM₁₀, 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: *Shipyards Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).

CO = carbon monoxide PM₁₀ = particulate matter less than 10 microns in size
 N/A = Not Applicable PM_{2.5} = particulate matter less than 2.5 microns in size
 NO₂ = nitrogen dioxide SO₂ = sulfur dioxide
 O₃ = ozone

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 O₃ AAQS. The entire SDAB has not exceeded the federal and state standards for NO₂ in the past 5 years. However, the SDAB is a nonattainment area for the state PM₁₀ and PM_{2.5} AAQS but is in attainment for the federal PM₁₀ and PM_{2.5} AAQS. For CO, SO₂, 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 area¹ 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, NO₂, and SO₂ levels are consistently below the relevant state and federal standards in the project vicinity. Ozone and PM₁₀ 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 (PM₁₀)				
Max 24-hr concentration (µg/m ³)		111	59	60
No. days exceeded: State	> 50 µg/m ³ /24-hr	4	4	3
Federal	> 150 µg/m ³ /24-hr	0	0	0
Annual Arithmetic Average (µg/m ³)		31.2	29.3	29.4
Exceeded: State	> 20 µg/m ³ ann. arth. avg.	Yes	Yes	Yes
Particulates (PM_{2.5})				
Max 24-hr concentration (µg/m ³)		69.6	42.0	52.1
No. days exceeded: Federal	> 65 µg/m ³ /24-hr	8	3	3
Annual Arithmetic Average (µg/m ³)		13	13	12
Exceeded: State	> 12 µg/m ³ ann. arth. avg.	Yes	Yes	No
Federal	> 15 µg/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
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	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: *Shipyards Sediment Project Air Quality Analysis* (LSA Associates, Inc., 2011).

µg/m³ = 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 O₃ 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 O₃ 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 O₃ and soot in 1997. Nevertheless, the Court threw out the U.S. EPA policy for implementing new O₃ 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 O₃ standard. The U.S. EPA issued the proposed rule implementing the 8-hour O₃ 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 PM₁₀ 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 PM₁₀

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 PM₁₀ 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 (PM₁₀ 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 PM₁₀ 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

CO₂ = carbon dioxide

lbs/day = pounds per day

N/A = Not Applicable (no threshold has been established)

NO_x = oxides of nitrogen

PM₁₀ = 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

CO₂ = carbon dioxide

lbs/day = pounds per day

N/A = Not Applicable (no threshold has been established)

NO_x = oxides of nitrogen

PM₁₀ = 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: *Shipyards 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: *Shipyards 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: *Shipyards 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 O₃. 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 NO₂ 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 O₃ (because NO_x is a precursor to O₃). 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 O₃) 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 O₃, and the project, in conjunction with other planned projects, would contribute to the existing nonattainment status for O₃. 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 ($^{\circ}\text{C}$) (1.1 ± 0.4 degrees Fahrenheit [$^{\circ}\text{F}$]) 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 CO₂ 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:

- CO₂
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

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 (EPA 1992) was passed to reduce United States dependence on foreign petroleum and improve air quality. EPA 1992 includes several parts that are intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPA 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 EPCRA 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 (EPCRA 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 (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—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 CO₂ 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 CO₂ 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 (CO₂e) from 2020 business-as-usual (BAU) levels and government operations emissions must be reduced by 1,459 metric tons of CO₂e 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 CO₂e 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 CO₂e per year would not require further analysis. 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, 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 CO₂e 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 CO₂, CH₄, and N₂O.
- **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. CO₂ is the most significant GHG emitted by vehicles, but lesser amounts of CH₄ and N₂O are also emitted in vehicle exhaust.

GHG emissions generated by the proposed project would predominantly consist of CO₂. In comparison to criteria air pollutants such as ozone (O₃) and particulate matter less than 10 microns in size (PM₁₀), CO₂ 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 CO₂ 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 CO₂ per year. The CO₂ 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 CO₂e 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 CO₂e 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 CO₂ 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
<p>Diesel Anti-Idling: In July 2004, the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.</p>	<p>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.</p>
<p>Hydrofluorocarbon Reduction:</p> <ol style="list-style-type: none"> 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. 	<p>No Conflict. The proposed project is a sediment removal project and would not include commercial uses that would require HFC reductions.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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).</p>	<p>No Conflict. The proposed project would not result in the construction of any buildings. Therefore, the proposed project would not conflict with this strategy.</p>

Table 4.7-1: Project Consistency with Climate Action Team Strategy

Climate Action Team Strategy	Consistent with Implementation of Strategy
<p>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).</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>No Conflict. The proposed project would not result in the construction of any buildings. Therefore, the proposed project would not conflict with this strategy.</p>

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
<p>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.</p>	<p>No Conflict. It is not anticipated that the proposed project would utilize City resources. Therefore, the proposed project would not conflict with this policy.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>400-02 Biosolids Beneficial Use: This policy aims to diversify biosolid management in order to avoid the high costs of emergency operations.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>

Table 4.7-2: Project Consistency with Existing City of San Diego Policies, Initiatives, and Resolutions

Policy, Initiative, Resolution	Consistent with Implementation of Strategy
<p>400-12 Implementation of Water Reclamation/Reuse: Policies that encourage water reclamation and reuse are to be set up.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>600-39 Land Guidance: The City aims to direct growth into compact patterns of development, where living and working environments are within walkable distances.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>

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.	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.
a) Parking Cash Out: Commuters offered subsidized parking are also offered the	

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
<p>cash equivalent if they use alternative travel modes.</p> <p>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.</p> <p>c) Transit and Rideshare Benefits: Free or discounted fares provided to employees.</p> <p>d) Reduced Employee Parking Subsidies: Commuters who drive would pay a portion or all of their parking costs.</p>	
<p>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.</p>	<p>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.</p>
<p>Measure A1.b.2: Encourage LEED certification for all new commercial and industrial buildings.</p>	<p>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.</p>
<p>Measure A1.a.4: Adopt an energy financing program to encourage energy efficiency retrofits in existing buildings.</p>	<p>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.</p>
<p>Measure A2.b.3: Implement strategies that prioritize parking for HOVs—carpools, vanpools, and transit vehicles.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>
<p>Measure A2.e.1: Develop streamlined permitting requirements and standardized design guidelines and siting criteria for all types of electric charging stations.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>

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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