DRAFT
SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

PIER 400 CONTAINER TERMINAL AND TRANSPORTATION CORRIDOR PROJECT

State Clearinghouse Number: 98031135

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ACRONYMS AND ABBREVIATIONS

ACTA	Alameda Corridor Transportation Authority
ACTC	Alameda Consolidated Transportation Corridor
ADT	Average Daily Traffic
AQMP	Air Quality Management Plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CMP	Congestion Management Plan
CO	carbon monoxide
COE	U.S. Army Corps of Engineers
dB	decibel
D/C	Demand to Capacity ratio
ETA	estimated time of arrival
EEZ	Exclusive Economic Zone
FCI	Federal Correctional Institution
FHA	Federal Highway Administration
GMP	Growth Management Plan
ICTF	Intermodal Container Transfer Facility
ICU	Intersection Capacity Utilization
IMO	International Maritime Organization
LACMTA	Los Angeles County Metropolitan Transportation Authority
LAHD	Los Angeles Harbor Department
L_{eq}	average noise level
LOS	Level of Service
LPG	liquid propane gas
NAAQS	National Ambient Air Quality Standards
NMCRC	Naval and Marine Corps Reserve Center
NMFS	National Marine Fisheries Service
NMHC	non-methane hydrocarbon

NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OFI	Operations, Facilities, and Infrastructure
OSHA	Occupational Safety and Health Administration
PCE	passenger car equivalent
PM_{10}	particulate matter less than 10 microns in diameter
POLA	Port of Los Angeles
POLB	Port of Long Beach
ppm	parts per million
PTC	permit to construct
PTO	permit to operate
RMP	Regional Mobility Plan
RMS	root mean square
ROG	reactive organic gases
ROI	Region of Inlfuence
RWQCB	California Regional Water Quality Control Board, Los Angeles Region
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SEIR	Supplemental Environmental Impact Report
SIP	State Implementation Plan
SLC	State Lands Commission
SO_2	sulfur dioxide
SWRCB	State Water Resources Control Board
TEU	Twenty-foot Equivalent Unit
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
V/C	Volume to Capacity ratio

VOC	volatile organic compound
VMT	vehicle miles traveled
vphpl	vehicles per hour per lane
VTIS	Vessel Traffic Information System
$\mu g/m^3$	micrograms per cubic meter

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This Executive Summary addresses the environmental effects of the Pier 400 Container Terminal and Transportation Corridor Project in the Port of Los Angeles. It summarizes the project background, project objectives, project description, and project alternatives. A table summarizing environmental impacts and mitigation measures is included at the end of this summary. A wide array of alternatives were examined in relation to this study. The Proposed Project and Alternative Design have been carried forward for detailed comparative analysis.

INTENDED USE OF THIS DOCUMENT

This Supplemental Environmental Impact Report (SEIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 as amended. The Los Angeles Harbor Department (LAHD) is the local Lead Agency for the project, and has prepared this SEIR. The SEIR is an informational document which will inform public agency decision makers and the general public of the significant environmental effects of the project, recommended ways to minimize the significant effects, and describe reasonable alternatives to the project. This document assesses the potential impacts, including unavoidable adverse impacts and cumulative impacts, related to the proposed project. This SEIR is also intended to support the permitting process of all agencies whose discretionary approvals must be obtained for particular elements of this project. This SEIR supplements the findings of the Deep Draft Navigation Improvements, Los Angeles and Long Beach Harbors Environmental Impact Statement/Environmental Impact Report (LAHD & USACE, 1992; copies of which are available for review at the LAHD Administration Bldg.).

PROJECT BACKGROUND

The project site is located at the southern end of the City of Los Angeles, in the Port of Los Angeles (Figure S-1). Development of a permanent industrial base within the Port of Los Angeles was gradual, and began with increased harbor improvements and transportation networks in the early 1900's. Terminal Island was created primarily by backfilling Rattlesnake Island with dredged channel deposits and demolishing Deadman Island. Dredging, filling, and demolition occurred in stages beginning in the early 1900’s. Current Los Angeles Harbor Department expansion plans assumed that the efficiency of existing terminals would be increased.

The Port of Los Angeles is an area primarily used for commercial shipping and industrial and maritime activities. Facilities present include major bulk liquid handling and storage facilities, container terminals, cargo terminals, fish canneries, auto storage and handling facilities, a sewage treatment plant, fire stations, and the following federal facilities: the U.S. Coast Guard Station; the U.S. Customs Building; and federal immigration, quarantine, and penal facilities.

The Port of Los Angeles has been formed over the years by incrementally dredging channels to accommodate larger vessels and to use the dredged materials to create new land for cargo terminals. The Main Channel was deepened by ten feet to its existing depth of -45’ MLLW in 1982. The material dredged in 1982 was used to create Pier 300.

Construction of the Pier 400 Landfill was assessed under the Deep Draft Navigation Improvements Program EIS/EIR (LAHD AND USACE, 1992) prepared by the U.S. Army Corps of Engineers, Los Angeles District and the Los Angeles Harbor Department. The Deep Draft EIS/EIR assessed impacts resulting from the dredging of ship channels and the placement of dredged materials to create the Pier 400 Landfill. The Deep Draft EIS/EIR addressed, at a programmatic level, the construction of a container terminal and dry bulk export terminal on Pier 300 and the construction of terminals, including a container terminal, on Pier 400. Terminal developments were left for detailed assessment as development projects arose. Both proposed terminals on Pier 300 have been assessed at a project level (LAHD 1993a &1993b). The container terminal on Pier 300 has been constructed and is operating. The first phase of the Pier 300 dry bulk terminal has been constructed and is operational. Subsequent phases will be developed as required to meet market demand.

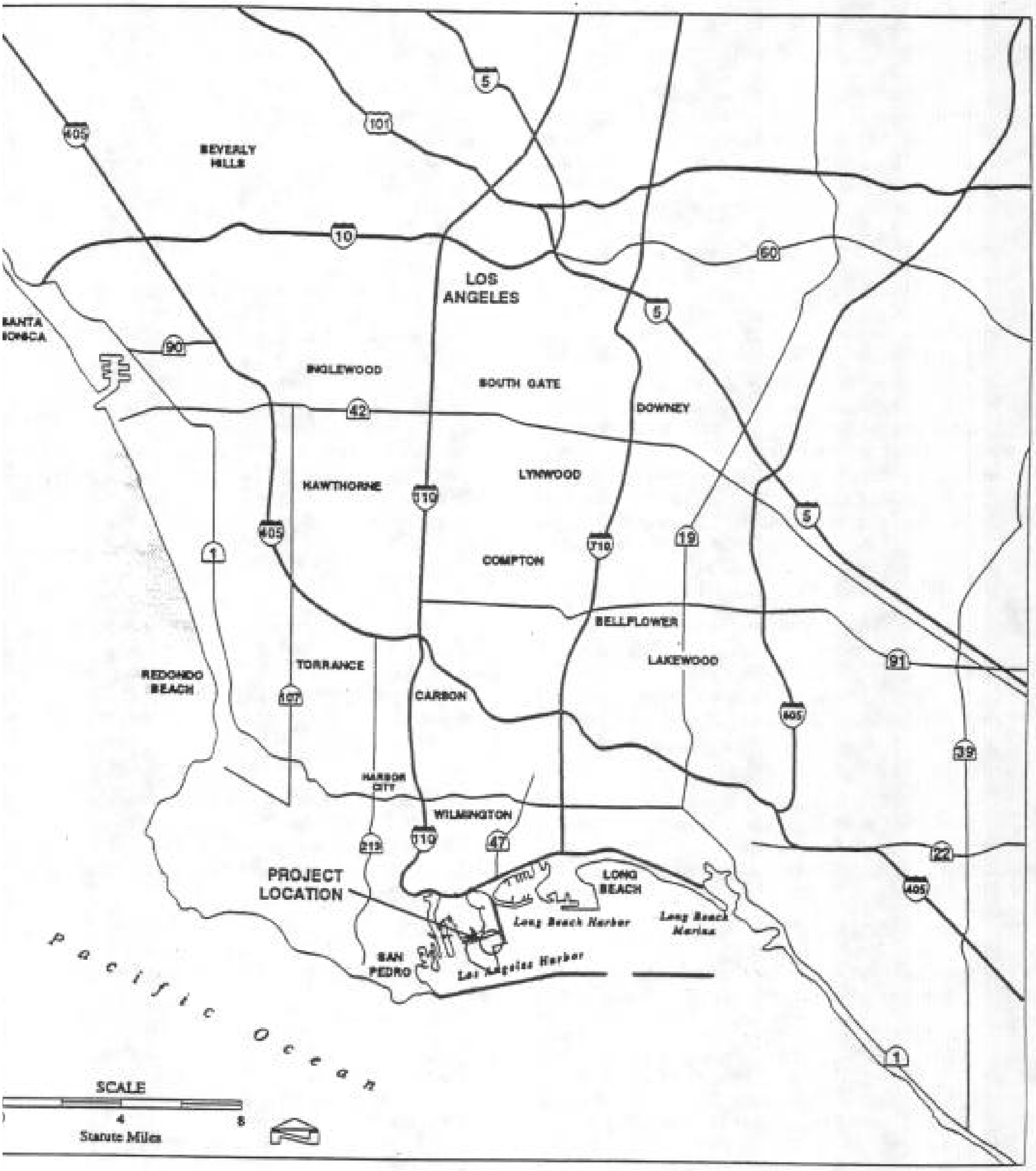


Figure S-1. Site Map

The proposed SEIR will assess, at a project specific level, development of a container terminal and transportation corridor on the newly created Pier 400 landfill. The analysis will be limited to only the information necessary to make the programmatic Deep Draft EIS/EIR analysis adequate for the specific project. The SEIR shall be prepared and circulated in accordance with the provisions of Section 15163 of the State CEQA Guidelines and Article VIII Section 4 of the City CEQA Guidelines.

PROJECT OBJECTIVES

The primary objective of this project is to optimize the efficiency of transporting future waterborne commerce by expanding berth and landside cargo handling facilities and capabilities. A second objective of this project is to preserve and improve environmental resources to the maximum extent practical.

Specific objectives for the container terminal include:

- Accommodate the cargo throughput forecasted for the Port of Los Angeles;
- Accommodate the largest, most modern container vessels in the world fleet;
- Develop transportation infrastructure to maximize cargo handling efficiencies while minimizing air quality and transportation impacts. Including intermodal, near-dock rail facilities;
- Support regulatory and permit actions required for project specific development;
- Provide adequate backland space immediately adjacent to the berth to facilitate rapid loading and unloading of ships without the need to double-handle containers; and
- Preserve and improve environmental resources to the maximum extent practical.

The Deep Draft Navigation Improvements Environmental Impact Statement/ Environmental Impact Report supported the development of a container terminal in a programmatic fashion leaving detailed assessment as required for later. The proposed Supplemental Environmental Impact Report will assess development of alternative projects at a project specific level. Other facilities to be developed on Pier 400 will be assessed individually by future site-specific assessments.

PROJECT DESCRIPTION

Proposed Project

The Proposed Project is the two-phase development of Pier 400 Stage II into a 345 acre container terminal with full rail, highway, and utility access. There is no customer identified for the Proposed Project. Therefore, to avoid delays, generic terminal design alternatives will be assessed. This identifies project elements which can be implemented with or without customer input. Design schedules will be developed with specific no-later-than dates for customer input. Some design elements can then proceed in the absence of a customer.

The two phases of the Proposed Project will be identified as Phase 1A and 2A to avoid confusion with the Alternative Design, which is also a two-phase project, which will be identified as Phase 1B and Phase 2B.

Phase 1A of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in July, 2001. Phase 1A includes (see Figure S-2):

- The construction of rail and highway access leading to and on the transportation causeway (the causeway was constructed as part of the Pier 400 Stage I Dredging and Landfill Project).
- The construction of the easterly 174 acres of the Pier 400 Stage II Landfill into a fully operational, container terminal. This includes a 20-acre full gate complex with buildings, entrance gate complex, and parking; a three post-Panamax berth wharf with 100 feet gage

crane rails; and intermodal rail capabilities including up to six working tracks (28-305' car capacity) and storage tracks.

Phase 2A of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in January, 2003. Phase 2A includes (see Figure S-3):

- The construction of the remaining 171 acres of the Pier 400 Stage II Landfill to make up a 345 acre, fully operational, container terminal. The completed facility will include a five post-Panamax berth wharf with 100 feet gage crane rails (option for an additional berth), a two-unit train loading yard with up to six working tracks (56-305' car capacity), rail storage tracks (dedicated inbound and outbound tracks on the corridor), and multiple buildings to support terminal operations.

Alternative Design

The Alternative Design is the two-phase development of Pier 400 Stage II into a 510 acre container terminal with full rail, highway, and utility access. There is no customer identified for the Alternative Design. Therefore, to avoid delays, a generic terminal design will be implemented. This identifies project elements which can be implemented with or without customer input. Design schedules will be developed with specific no-later-than dates for customer input. Some design elements can then proceed in the absence of a customer.

The two phases of Alternative Design the will be identified as Phase 1B and 2B to avoid confusion with the Proposed Project, which is also a two-phase project, which will be identified as Phase 1A and Phase 2A.

Phase 1B of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in mid 2001. Phase 1B includes (see Figure S-4):

- The construction of rail and highway access leading to and on the transportation causeway (the causeway was constructed as part of the Pier 400 Stage I Dredging and Landfill Project).
- The construction of 340 acres of the Pier 400 Stage I and II Landfill into a fully operational, container terminal. This includes a 20-acre full gate complex with buildings, entrance gate complex, and parking; a five post-Panamax berth wharf (5,300 feet long) with 100 feet gage crane rails; and intermodal rail capabilities including a minimum of eight working tracks (100-305' car capacity) and rail storage tracks (dedicated inbound and outbound tracks on the corridor).

Phase 2B of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in August, 2002. Phase 2B includes (see Figure S-5):

- The construction of the remaining 170 acres of the Pier 400 Stage II Landfill to make up a 510 acre, fully operational, container terminal. Construction will include approximate 3,000 linear feet of additional berthing, and marine and longshore toilet buildings. The completed facility will include an eight post-Panamax berth wharf (8,300 feet long) with 100 feet gage crane rails, a four-unit train loading yard with a minimum of eight working tracks (100-305' car capacity), rail storage tracks (dedicated inbound and outbound tracks on the corridor), and multiple buildings to support terminal operations.

Gap Closure Alternative

The Pier 400 Transportation Corridor was constructed with a 350-foot wide gap in it. An alternative to constructing a bridge across the gap is to fill in the gap creating a solid, unbroken transportation corridor. Construction impacts from creating an unbroken transportation corridor was included in the Deep Draft Navigation Improvements Program EIS/EIR (LAHD & USACE, 1992). This Supplemental Environmental Impact Report will assess impacts resulting from construction of transportation facilities along the entire transportation corridor. Operation of

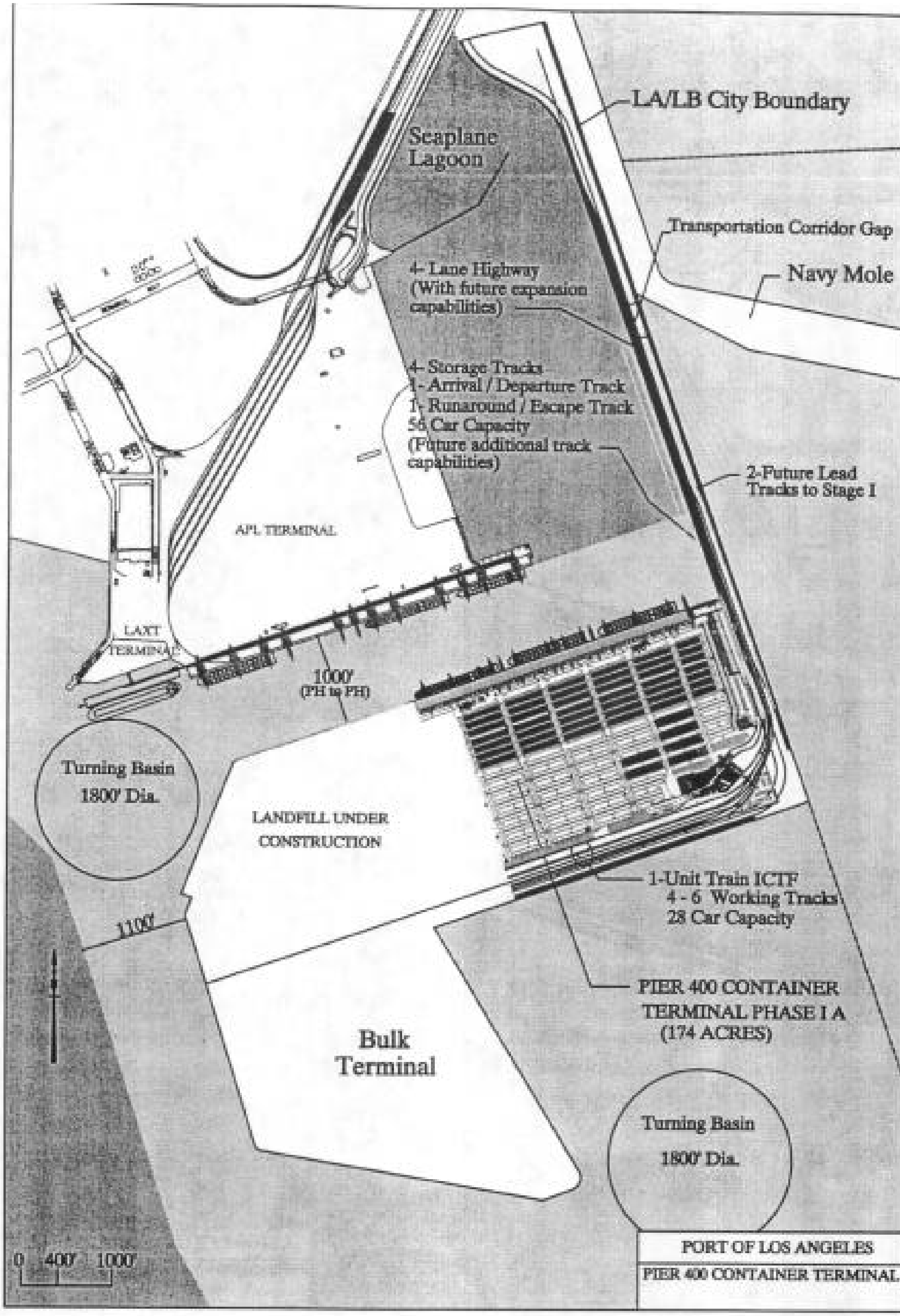


Figure S-2. Pier 400 Container Terminal. Phase 1A

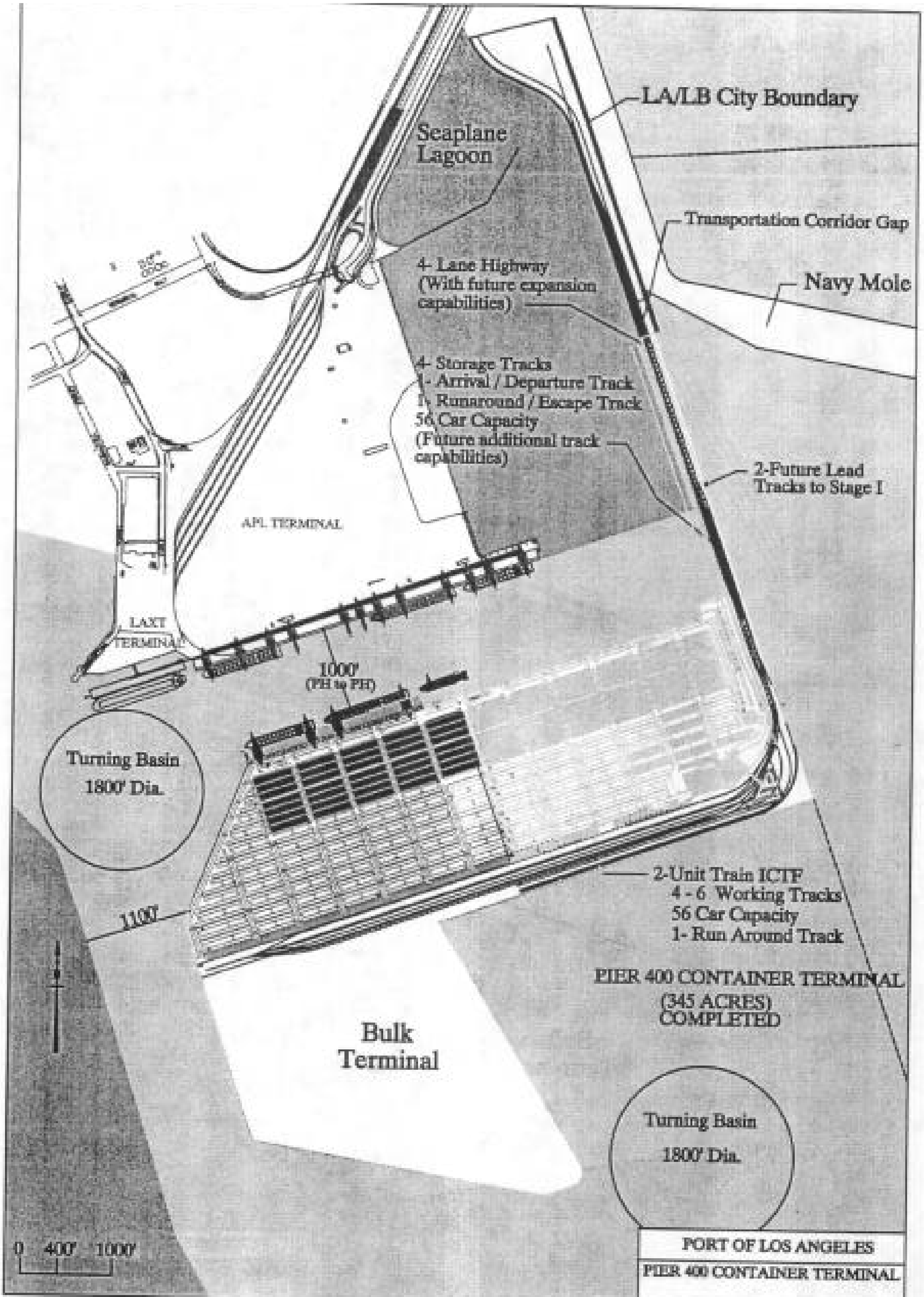


Figure S-3. Pier 400 Container Terminal Phase 2A

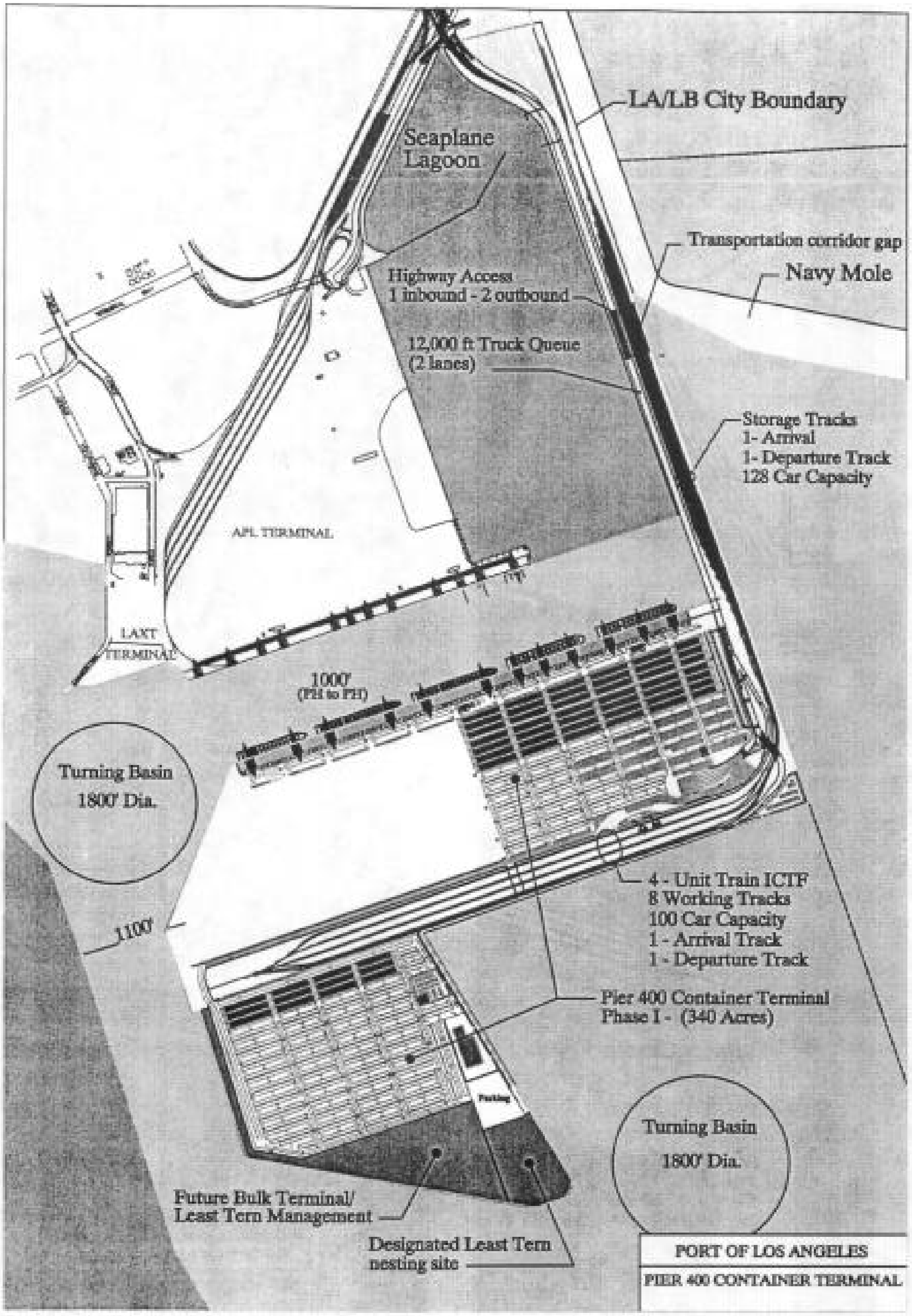


Figure S-4. Pier 400 Container Terminal. Phase 1B

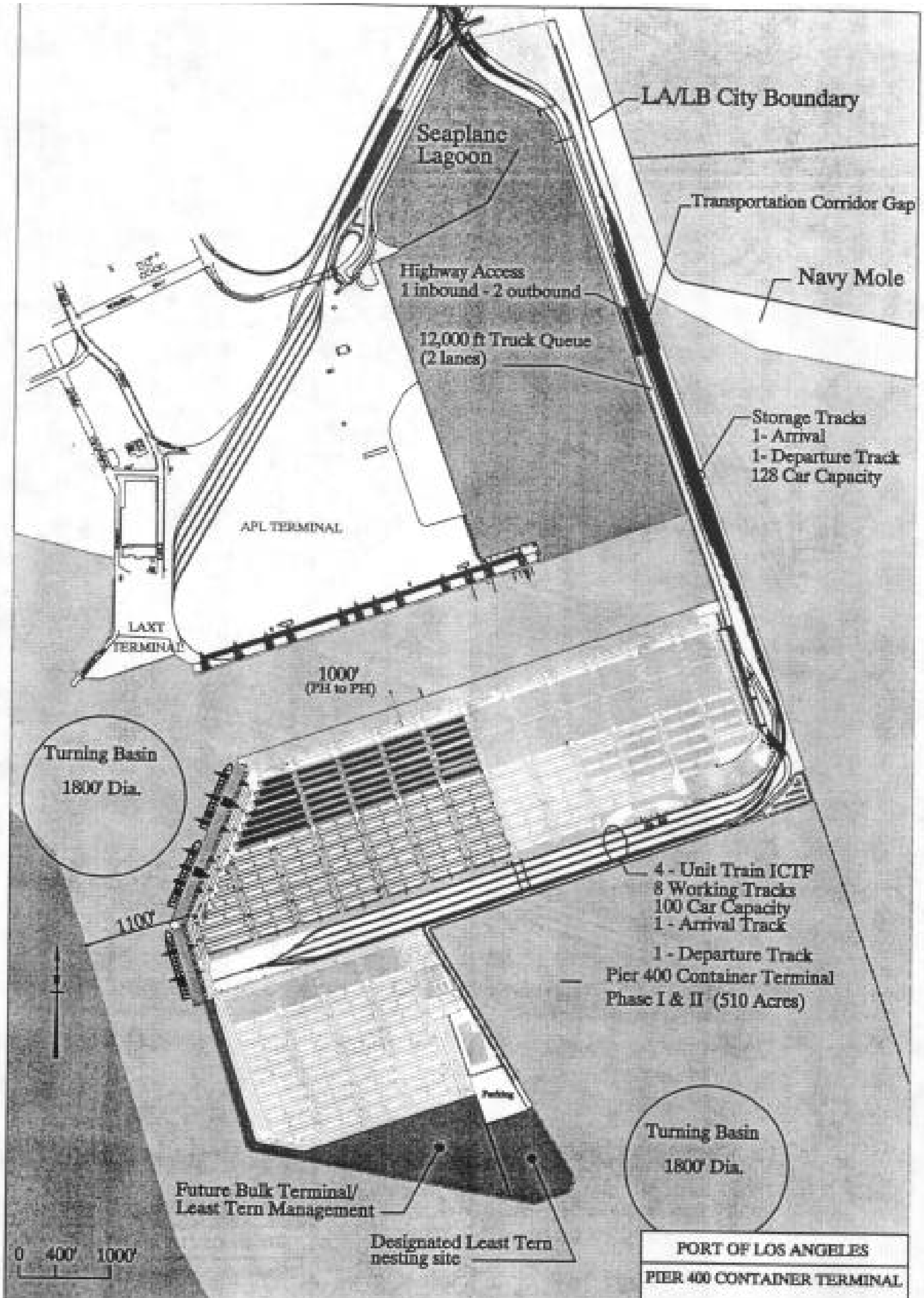


Figure S-5. Pier 400 Container Terminal Phase 2B proposed facilities will not change as a result of this modification and will not be addressed. Closure of the gap could be associated with either of the two designs discussed above. The construction of the gap closure would be added to the ongoing Pier 400 dredge and landfill project with minimal, if any, impacts to the larger project schedule.

ALTERNATIVES

A wide array of alternatives was examined in conjunction with the preparation of this SEIR. These alternatives were divided into the no-project alternative, alternative designs, and alternative uses. With the No Project Alternative, development of a container terminal on the project site would not occur. Some other use for the site would be expected and would be evaluated in a separate environmental document should this alternative be selected. Design alternatives included the Alternative Design, operating the two developmental phases of the Proposed Project as separate container terminals, and limiting construction to Phase 1A only. Alternative uses included the use of other west coast ports and use of the Port of Long Beach. All of these alternatives, with the exception of the no-project alternative, the Alternative Design, and two-terminal operation, were eliminated from further detailed evaluation based on their infeasibility (engineering and/or environmental) and planning objective constraints. See Section 4 for a detailed discussion.

SIGNIFICANT ADVERSE IMPACTS AND MITIGATION MEASURES

Tables S-1, S-2, S-3, and S-4 summarize the significant environmental impacts of the Pier 400 Container Terminal and Transportation Corridor Project. Proposed mitigation and monitoring measures are also summarized. Impacts in environmental areas not shown in the table were found to be insignificant, as discussed in the initial study and the remainder of this document.

IMPACTS ON PUBLIC WATER SYSTEMS

The water supply agency for the Pier 400 Container Terminal and Transportation Corridor Project is the Los Angeles City Department of Water and Power (DWP). A copy of the Notice of Preparation (NOP) for the Pier 400 Container Terminal and Transportation Corridor Project was provided to the DWP in accordance with Section 15083.5 of the State CEQA Guidelines. The NOP was mailed on March 23, 1998. No response was received. A separate letter was sent to the DWP requesting confirmation of adequate water supplies on October 1, 1998. DWP's response indicated that there were adequate water supplies for the proposed container terminal. We have determined, based on alternate project design criteria and information supplied by the DWP, that adequate water supplies would also be available for the alternate design project.

EIR CONTENTS

A detailed description of the project is contained in Section 1. The relationship of this SEIR to other projects and plans is discussed in Section 2. The environmental setting, impacts, and mitigation measures for the proposed project are discussed in Section 3. Section 4 discusses alternatives to the proposed project and their associated environmental impacts. Long-term implications of the proposed project are discussed in Section 5. References and supporting documentation are included in the Appendices.

Table S-1 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Bridged Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality	ROG, CO, NOx, and PM10 emissions during construction.	Properly tune and maintain all construction equipment, include engine timing retard where feasible.	Significant	Contractor/ LAHD
		Encourage ridesharing and mass transit use among construction personnel.	Significant	Contractor/ LAHD
		Discontinue construction activities during Stage II smog alerts in the Long Beach source receptor area.	Significant	Contractor/ LAHD
		Use low-NOx engines when ever feasible. Use alternative fuels including electrification, catalytic converters, particulate traps, and other advanced technology whenever feasible.	Significant	Contractor/ LAHD
	ROG emissions during construction.	Encourage the use of CARB reformulated diesel fuel in off-road equipment during construction.	Significant	Contractor/ LAHD
	PM10 emissions during construction.	Maintain traffic speeds of 15 mph or less on all unpaved Surfaces.	Significant	Contractor
		Suspend grading activities when wind speeds exceed 25 mph.	Significant	Contractor
	ROG, CO, NOx, SOx, and PM10 emissions during operations	Encourage the use of clean fuels, electric power, and injection timing retard (where feasible) on diesel-powered terminal yard equipment.	Significant	Tenant
		Encourage the use of clean fuels in all marine vessels.	Significant	Tenant

Table S-1 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Bridged Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality (cont'd)		Encourage the use of the internet web site "Dispatch System" created by the Intermodal Committee (netsite at: http//www.laintermodal.com).	Significant	Tenant
		Encourage tenant(s) to schedule goods movement for off peak traffic hours when feasible.	Significant	Tenant
		Configure parking to minimize traffic interference.	Significant	Tenant
Ground Transportation	Increased traffic during operation of the proposed terminal could significantly impact project intersections.	None required.	Significant	
Biota and Habitats	Construction activities could significantly impact nesting success of the least tern.	Provide training and educational material to construction workers.	Insignificant	Contractor/LAHD
		Unless otherwise approved by the CDFG and USFWS, no impact pile driving shall be allowed along the access corridor during the April to September breeding season of the California least tern.	Insignificant	LAHD
		Discontinue construction activities whenever a bird's nest is discovered during the least tern's nesting season (April to September) until cleared in consultation with the CDFG and USFWS.	Insignificant	Contractor/LAHD
	Operations of the proposed terminal could significantly impact nesting success of the least tern.	Meet with USFWS and CDFG annually to assess status of the least tern nesting site.	Insignificant	LAHD

Table S-1 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Bridged Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
(cont'd)		minimize glare and reduce disruptions to the designated nesting sites.		
		Install anti-perching devices on potential predator roosts in project area.	Insignificant	LAHD
Noise and Vibration	Increased truck traffic noise on the grounds outside and classrooms inside the NMCRC would exceed appropriate speech interference thresholds during Phase 2A.	None feasible	Significant for Phase 2A	None
	Train horns sounded adjacent to the NMCRC would cause a potentially significant noise impact during Phase 2A.[1]	Eliminate the at-grade crossing at Reeves Avenue, or, eliminate train horns adjacent to the NMCRC, or construct a 16- to 20-foot high sound wall adjacent to the NMCRC along the railroad alignment. Measures that would eliminate the need for train horns are preferable for either the one- or two-track scenario.	Insignificant	LAHD

[1] This impact and its associated mitigation measure would only apply to the first alternative rail corridor, the Navy Mole Overhead Rail Alignment. Selection and use of the second alternative rail corridor, the Navy Way Overhead Rail Alignment, avoids this impact.

Table S-2 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality	ROG, CO, NOx, and PM10 emissions during construction.	Properly tune and maintain all construction equipment, include engine timing retard where feasible.	Significant	Contractor/ LAHD
		Encourage ridesharing and mass transit use among construction personnel.	Significant	Contractor/ LAHD
		Discontinue construction activities during Stage II smog alerts in the Long Beach source receptor area.	Significant	Contractor/ LAHD
		Use low-NOx engines when ever feasible. Use alternative fuels including electrification, catalytic converters, particulate traps, and other advanced technology whenever feasible.	Significant	Contractor/ LAHD
	ROG emissions during construction.	Encourage the use of CARB reformulated diesel fuel in off-road equipment during construction.	Significant	Contractor/ LAHD
	PM10 emissions during construction.	Maintain traffic speeds of 15 mph or less on all unpaved Surfaces.	Significant	Contractor
		Suspend grading activities when wind speeds exceed 25 mph.	Significant	Contractor
	ROG, CO, NOx, SOx, and PM10 emissions during operations	Encourage the use of clean fuels, electric power, and injection timing retard (where feasible) on diesel-powered terminal yard equipment.	Significant	Tenant
		Encourage the use of clean fuels in all marine vessels.	Significant	Tenant

Table S-2 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality (cont'd)		Encourage the use of the internet web site "Dispatch System" created by the Intermodal Committee (netsite at: http//www.laintermodal.com).	Significant	Tenant
		Encourage tenant(s) to schedule goods movement for off peak traffic hours when feasible.	Significant	Tenant
		Configure parking to minimize traffic interference.	Significant	Tenant
Ground Transportation	Increased traffic during operation of the proposed terminal could significantly impact project intersections.	None required.	Significant	
Biota and Habitats	Construction activities could significantly impact nesting success of the least tern.	Provide training and educational material to construction workers.	Insignificant	Contractor/LAHD
		Unless otherwise approved by the CDFG and USFWS, no impact pile driving shall be allowed along the access corridor during the April to September breeding season of the California least tern.	Insignificant	LAHD
		Discontinue construction activities whenever a bird's nest is discovered during the least tern's nesting season (April to September) until cleared in consultation with the CDFG and USFWS.	Insignificant	Contractor/LAHD
	Operations of the proposed terminal could significantly impact nesting success of the least tern.	Meet with USFWS and CDFG annually to assess status of the least tern nesting site.	Insignificant	LAHD

Table S-2 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Biota and Habitats (cont'd)		Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.	Insignificant	LAHD
		Install anti-perching devices on potential predator roosts in project area.	Insignificant	LAHD
	Closure of the gap would result in the loss of 2.7 acres of aquatic habitat.	Use of Bolsa Chica Mitigation Bank for replacement of lost habitat.	Insignificant	LAHD
	Incremental degradation of biological resources as a result of changes in water circulation following gap closure.	Provide off-site mitigation through existing or new mitigation agreements.	Insignificant	LAHD
		Remove the Seaplane Lagoon groin.	Insignificant	LAHD
	Construction activities to close the gap could impact foraging success of the least tern.	Unless specifically allowed by the CDFG and USFWS, the LAHD will not allow turbidity from the fill activities to extend into the shallow water habitat to the east of Pier 300 during the April-September breeding season of the California least tern.	Insignificant	LAHD
Noise and Vibration	Increased truck traffic noise on the grounds outside and classrooms inside the NMCRC would exceed appropriate speech interference thresholds during Phase 2A.	None feasible	Significant for Phase 2A	None

Table S-2 Summary of Potentially Significant Adverse Impacts and Mitigation Measures - Proposed Project with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Noise and Vibration (cont'd)	Train horns sounded adjacent to the NMCRC would cause a potentially significant noise impact during Phase 2A.[2]	Eliminate the at-grade crossing at Reeves Avenue, or, eliminate train horns adjacent to the NMCRC, or construct a 16- to 20-foot high sound wall adjacent to the NMCRC along the railroad alignment. Measures that would eliminate the need for train horns are preferable for either the one- or two-track scenario.	Insignificant	LAHD

[2] This impact and its associated mitigation measure would only apply to the first alternative rail corridor, the Navy Mole Overhead Rail Alignment. Selection and use of the second alternative rail corridor, the Navy Way Overhead Rail Alignment, avoids this impact.

Table S-3 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Bridged Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality	ROG, CO, NOx, and PM10 emissions during construction.	Properly tune and maintain all construction equipment, include engine timing retard where feasible.	Significant	Contractor/ LAHD
		Encourage ridesharing and mass transit use among construction personnel.	Significant	Contractor/ LAHD
		Discontinue construction activities during Stage II smog alerts in the Long Beach source receptor area.	Significant	Contractor/ LAHD
		Use low-NOx engines when ever feasible. Use alternative fuels including electrification, catalytic converters, particulate traps, and other advanced technology whenever feasible.	Significant	Contractor/ LAHD
	ROG emissions during construction.	Encourage the use of CARB reformulated diesel fuel in off-road equipment during construction.	Significant	Contractor/ LAHD
	PM10 emissions during construction.	Maintain traffic speeds of 15 mph or less on all unpaved Surfaces.	Significant	Contractor
		Suspend grading activities when wind speeds exceed 25 mph.	Significant	Contractor
	ROG, CO, NOx, SOx, and PM10 emissions during operations	Encourage the use of clean fuels, electric power, and injection timing retard (where feasible) on diesel-powered terminal yard equipment.	Significant	Tenant
		Encourage the use of clean fuels in all marine vessels.	Significant	Tenant

Table S-3 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Bridged Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality (cont'd)		Encourage the use of the internet web site "Dispatch System" created by the Intermodal Committee (netsite at: http//www.laintermodal.com).	Significant	Tenant
		Encourage tenant(s) to schedule goods movement for off peak traffic hours when feasible.	Significant	Tenant
		Configure parking to minimize traffic interference.	Significant	Tenant
Ground Transportation	Increased traffic during operation of the proposed terminal could significantly impact project intersections.	None required.	Significant	
Biota and Habitats	Construction activities could significantly impact nesting success of the least tern.	Provide training and educational material to construction workers.	Insignificant	Contractor/LAHD
		Unless otherwise approved by the CDFG and USFWS, no impact pile driving shall be allowed along the access corridor during the April to September breeding season of the California least tern.	Insignificant	LAHD
		Discontinue construction activities whenever a bird's nest is discovered during the least tern's nesting season (April to September) until cleared in consultation with the CDFG and USFWS.	Insignificant	Contractor/LAHD
	Operations of the proposed terminal could significantly impact nesting success of the least tern.	Meet with USFWS and CDFG annually to assess status of the least tern nesting site.	Insignificant	LAHD

Table S-3 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Bridged Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Biota and Habitats (cont'd)		Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.	Insignificant	LAHD
		Install anti-perching devices on potential predator roosts in project area.	Insignificant	LAHD
		Elevate designated nesting site in coordination with the USFWS and the CDFG.	Insignificant	LAHD
		Design container facility so no high structures are adjacent to the designated nesting site.	Insignificant	LAHD
Noise and Vibration	Increased truck traffic noise on the grounds outside and classrooms inside the NMCRC would exceed appropriate speech interference thresholds during Phases 1B & 2B.	None feasible	Significant for Phases 1B & 2B	None
	Train horns sounded adjacent to the NMCRC would cause a potentially significant noise impact during Phases 1B & 2B.[3]	Eliminate the at-grade crossing at Reeves Avenue, or, eliminate train horns adjacent to the NMCRC, or construct a 16- to 20-foot high sound wall adjacent to the NMCRC along the railroad alignment. Measures that would eliminate the need for train horns are preferable for either the one- or two-track scenario.	Insignificant	LAHD

[3] This impact and its associated mitigation measure would only apply to the first alternative rail corridor, the Navy Mole Overhead Rail Alignment. Selection and use of the second alternative rail corridor, the Navy Way Overhead Rail Alignment, avoids this impact.

Table S-4 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality	ROG, CO, NOx, and PM10 emissions during construction.	Properly tune and maintain all construction equipment, include engine timing retard where feasible.	Significant	Contractor/ LAHD
		Encourage ridesharing and mass transit use among construction personnel.	Significant	Contractor/ LAHD
		Discontinue construction activities during Stage II smog alerts in the Long Beach source receptor area.	Significant	Contractor/ LAHD
		Use low-NOx engines when ever feasible. Use alternative fuels including electrification, catalytic converters, particulate traps, and other advanced technology whenever feasible.	Significant	Contractor/ LAHD
	ROG emissions during construction.	Encourage the use of CARB reformulated diesel fuel in off-road equipment during construction.	Significant	Contractor/ LAHD
	PM10 emissions during construction.	Maintain traffic speeds of 15 mph or less on all unpaved Surfaces.	Significant	Contractor
		Suspend grading activities when wind speeds exceed 25 mph.	Significant	Contractor
	ROG, CO, NOx, SOx, and PM10 emissions during operations	Encourage the use of clean fuels, electric power, and injection timing retard (where feasible) on diesel-powered terminal yard equipment.	Significant	Tenant
		Encourage the use of clean fuels in all marine vessels.	Significant	Tenant

Table S-4 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Meteorology and Air Quality (cont'd)		Encourage the use of the internet web site "Dispatch System" created by the Intermodal Committee (netsite at: http//www.laintermodal.com).	Significant	Tenant
		Encourage tenant(s) to schedule goods movement for off peak traffic hours when feasible.	Significant	Tenant
		Configure parking to minimize traffic interference.	Significant	Tenant
Ground Transportation	Increased traffic during operation of the proposed terminal could significantly impact project intersections.	None required.	Significant	
Biota and Habitats	Construction activities could significantly impact nesting success of the least tern.	Provide training and educational material to construction workers.	Insignificant	Contractor/LAHD
		Unless otherwise approved by the CDFG and USFWS, no impact pile driving shall be allowed along the access corridor during the April to September breeding season of the California least tern.	Insignificant	LAHD
		Discontinue construction activities whenever a bird's nest is discovered during the least tern's nesting season (April to September) until cleared in consultation with the CDFG and USFWS.	Insignificant	Contractor/LAHD
	Operations of the proposed terminal could significantly impact nesting success of the least tern.	Meet with USFWS and CDFG annually to assess status of the least tern nesting site.	Insignificant	LAHD

Table S-4 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Significance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Biota and Habitats (cont'd)		Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.	Insignificant	LAHD
		Install anti-perching devices on potential predator roosts in project area.	Insignificant	LAHD
		Elevate designated nesting site in coordination with the USFWS and the CDFG.	Insignificant	LAHD
	Closure of the gap would result in the loss of 2.7 acres of aquatic habitat.	Use of Bolsa Chica Mitigation Bank for replacement of lost habitat.	Insignificant	LAHD
	Incremental degradation of biological resources as a result of changes in water circulation following gap closure.	Provide off-site mitigation through existing or new mitigation agreements.	Insignificant	LAHD
		Remove the Seaplane Lagoon groin.	Insignificant	LAHD
	Construction activities to close the gap could impact foraging success of the least tern.	Unless specifically allowed by the CDFG and USFWS, the LAHD will not allow turbidity from the fill activities to extend into the shallow water habitat to the east of Pier 300 during the April-September breeding season of the California least tern.	Insignificant	LAHD
Noise and Vibration	Increased truck traffic noise on the grounds outside and classrooms inside the NMCRC would exceed appropriate speech interference thresholds during Phases 1B & 2B.	None feasible	Significant for Phases 1B & 2B	None

Table S-4 Summary of Potentially Significant Adverse Impacts and Mitigation Measures – Alternative Design with Filled Gap

Environmental Category	Potentially Significant Adverse Impacts	Mitigation Measures	Signifi-cance after Mitigation	Mitigation Program Responsibility/ Report Recipient
Noise and Vibration (cont'd)	Train horns sounded adjacent to the NMCRC would cause a potentially significant noise impact during Phases 1B & 2B.[4]	Eliminate the at-grade crossing at Reeves Avenue, or, eliminate train horns adjacent to the NMCRC, or construct a 16- to 20-foot high sound wall adjacent to the NMCRC along the railroad alignment. Measures that would eliminate the need for train horns are preferable for either the one- or two-track scenario.	Insignificant	LAHD

[4] This impact and its associated mitigation measure would only apply to the first alternative rail corridor, the Navy Mole Overhead Rail Alignment. Selection and use of the second alternative rail corridor, the Navy Way Overhead Rail Alignment, avoids this impact.

SECTION 1

PROJECT DESCRIPTION

SECTION 1
PROJECT DESCRIPTION

1.1 PROJECT LOCATION

The project site is located at the southern end of the city of Los Angeles, in the Port of Los Angeles (Figure 1-1) in San Pedro Bay.

1.2 GENERAL SETTING

Land use in the Port of Los Angeles (POLA) is primarily industrial, and contains approximately 300 berths for shipping cargo to, and from the region (Figure 1-2). Activities at the POLA include the transfer of containerized goods, the shipping of bulk items in open containers, such as foodstuffs and coal, liquid bulk handling and storage facilities, fish canneries, and auto storage and handling facilities. The Port of Los Angeles is administered by the Los Angeles Harbor Department, a department of the city of Los Angeles.

1.3 PROJECT OBJECTIVES

The primary objective of this project is to optimize the efficiency of transporting future waterborne commerce by expanding berth and landside cargo handling facilities and capabilities. A second objective of this project is to preserve and improve environmental resources to the maximum extent practical.

Specific objectives for the container terminal include:

- Accommodate the cargo throughput forecasted for the Port of Los Angeles;
- Accommodate the largest, most modern container vessels in the world fleet;
- Develop transportation infrastructure to maximize cargo handling efficiencies while minimizing air quality and transportation impacts. Including intermodal, near-dock rail facilities;
- Support regulatory and permit actions required for project specific development;
- Provide adequate backland space immediately adjacent to the berth to facilitate rapid loading and unloading of ships without the need to double-handle containers; and
- Preserve and improve environmental resources to the maximum extent practical.

The Deep Draft Navigation Improvements Environmental Impact Statement/ Environmental Impact Report supported the development of a container terminal in a programmatic fashion leaving detailed assessment as required for later. The proposed Supplemental Environmental Impact Report will assess development of alternative projects at a project specific level of detail. Other facilities to be developed on Pier 400 will be assessed individually by future site-specific assessments.

1.4 HISTORICAL PERSPECTIVE

Development of a permanent industrial base within the Port of Los Angeles was gradual, and began with increased harbor improvements and transportation networks in the early 1900's. Terminal Island was created primarily by backfilling Rattlesnake Island with dredged channel deposits and demolishing Deadman Island. Dredging, filling, and demolition occurred in stages beginning in the early 1900's.

The Port of Los Angeles is an area primarily used for commercial shipping and industrial and maritime activities. Facilities present include major bulk liquid handling and storage facilities, container terminals, cargo terminals, fish canneries, auto storage and handling facilities, a sewage treatment plant, fire stations, and the following federal facilities: the U.S. Coast Guard Station; the U.S. Customs Building; and federal immigration, quarantine, and penal facilities.

Figure 1-1. Site Map

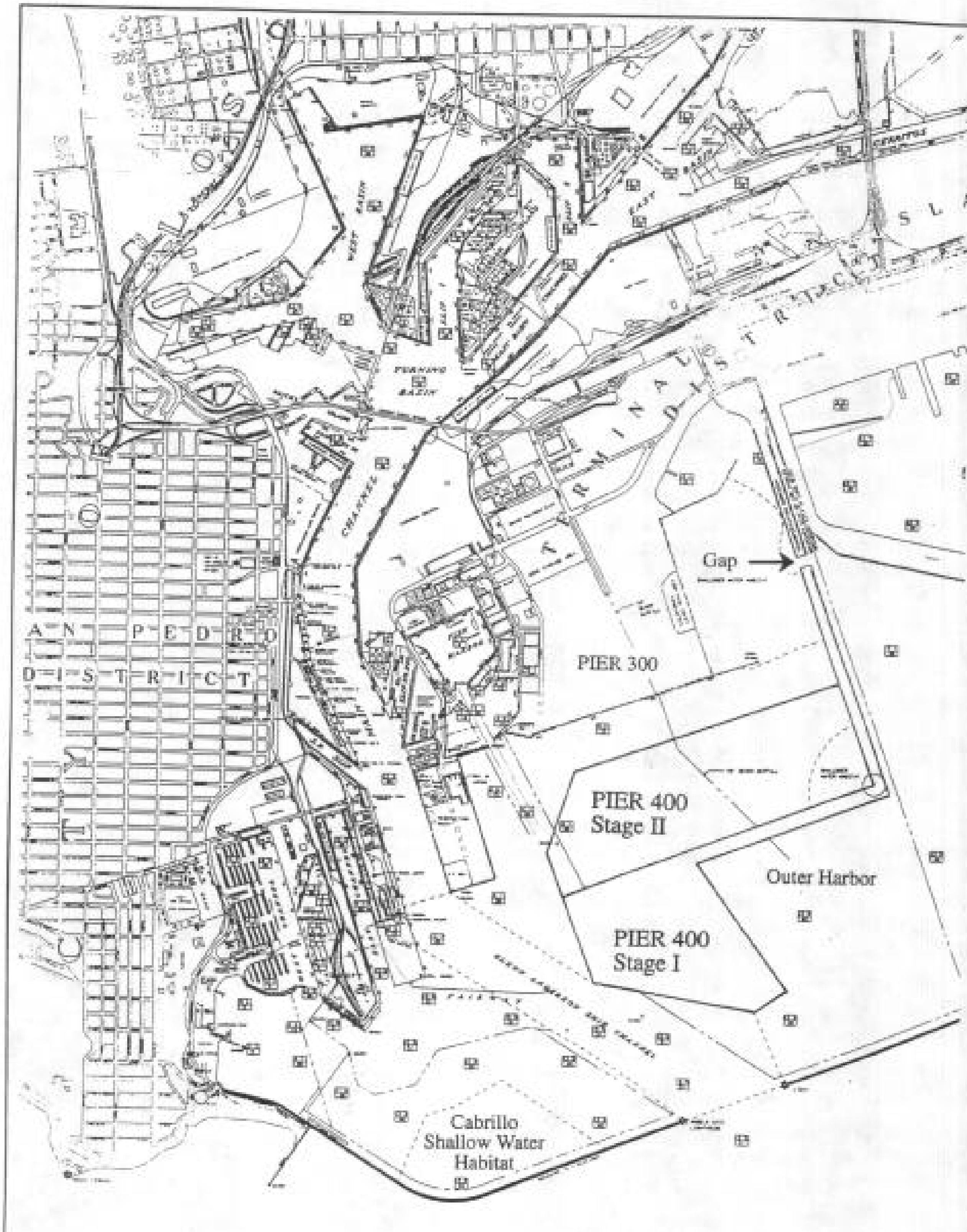


Figure 1-2. Port of Los Angeles

The Port of Los Angeles has been formed over the years by incrementally dredging channels to accommodate larger vessels and to use the dredged materials to create new land for cargo terminals. The Main Channel was deepened by ten feet to its existing depth of -45' MLLW in 1982. The material dredged in 1982 was used to create Pier 300.

Construction of the Pier 400 Landfill was assessed under the Deep Draft Navigation Improvements Program EIS/EIR (LAHD and USACE, 1992) prepared by the U.S. Army Corps of Engineers, Los Angeles District and the Los Angeles Harbor Department. The Deep Draft EIS/EIR assessed impacts resulting from the dredging of ship channels and the placement of dredged materials to create the Pier 400 Landfill. The Deep Draft EIS/EIR addressed, at a programmatic level, the construction of a container terminal and dry bulk export terminal on Pier 300 and the construction of terminals, including a container terminal, on Pier 400. Terminal developments were left for detailed assessment as development projects arose. Both proposed terminals on Pier 300 have been assessed at a project level (LAHD 1993a &1993b). The container terminal on Pier 300 has been constructed and is operating. The first phase of the Pier 300 dry bulk terminal has been constructed and is operational. Subsequent phases will be developed as required to meet market demand. Current Los Angeles Harbor Department expansion plans assumed that the efficiency of existing terminals would be increased.

The proposed Supplemental Environmental Impact Report (SEIR) will assess, at a project specific level, development of a container terminal and transportation corridor on the newly created Pier 400 landfill. The analysis will be limited to only the information necessary to make the programmatic Deep Draft EIS/EIR analysis adequate for the alternatives included. The SEIR shall be prepared and circulated in accordance with the provisions of Section 15163 of the State CEQA Guidelines and Article VIII Section 4 of the City CEQA Guidelines.

1.5 EXISTING CONDITIONS

Pier 400, Stage II, the proposed project site, is currently under construction. Land is beginning to show under an accelerated construction schedule designed to meet the scheduled completion for this project.

1.6 PROJECT DESCRIPTION

Proposed Project

The proposed project is the two-phase development of Pier 400 Stage II into a 345 acre container terminal with full rail, highway, and utility access. There is no customer identified for the proposed facility. Therefore, to avoid delays, generic terminal design alternatives will be assessed. This identifies project elements which can be implemented with or without customer input. Design schedules will be developed with specific no-later-than dates for customer input. Some design elements can then proceed in the absence of a customer.

The two phases of the Proposed Project will be identified as Phase 1A and 2A to avoid confusion with the Alternative Design, which is also a two-phase project, which will be identified as Phase 1B and Phase 2B.

Phase 1A of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in July, 2001. Phase 1A includes:

- The construction of rail and highway access leading to and on the transportation causeway. The causeway was constructed as part of the Pier 400 Stage I Dredging and Landfill Project. Two alternative rail corridors are being considered (see Figures 1-3 & 1-4).
- The construction of the easterly 174 acres of the Pier 400 Stage II Landfill into a fully operational, container terminal (see Figure 1-5). This includes a 20-acre full gate complex with buildings, entrance gate complex, and parking; a three post-Panamax berth wharf with 100 feet gage crane rails; and intermodal rail capabilities including up to six working tracks (28-305' car capacity) and storage tracks.

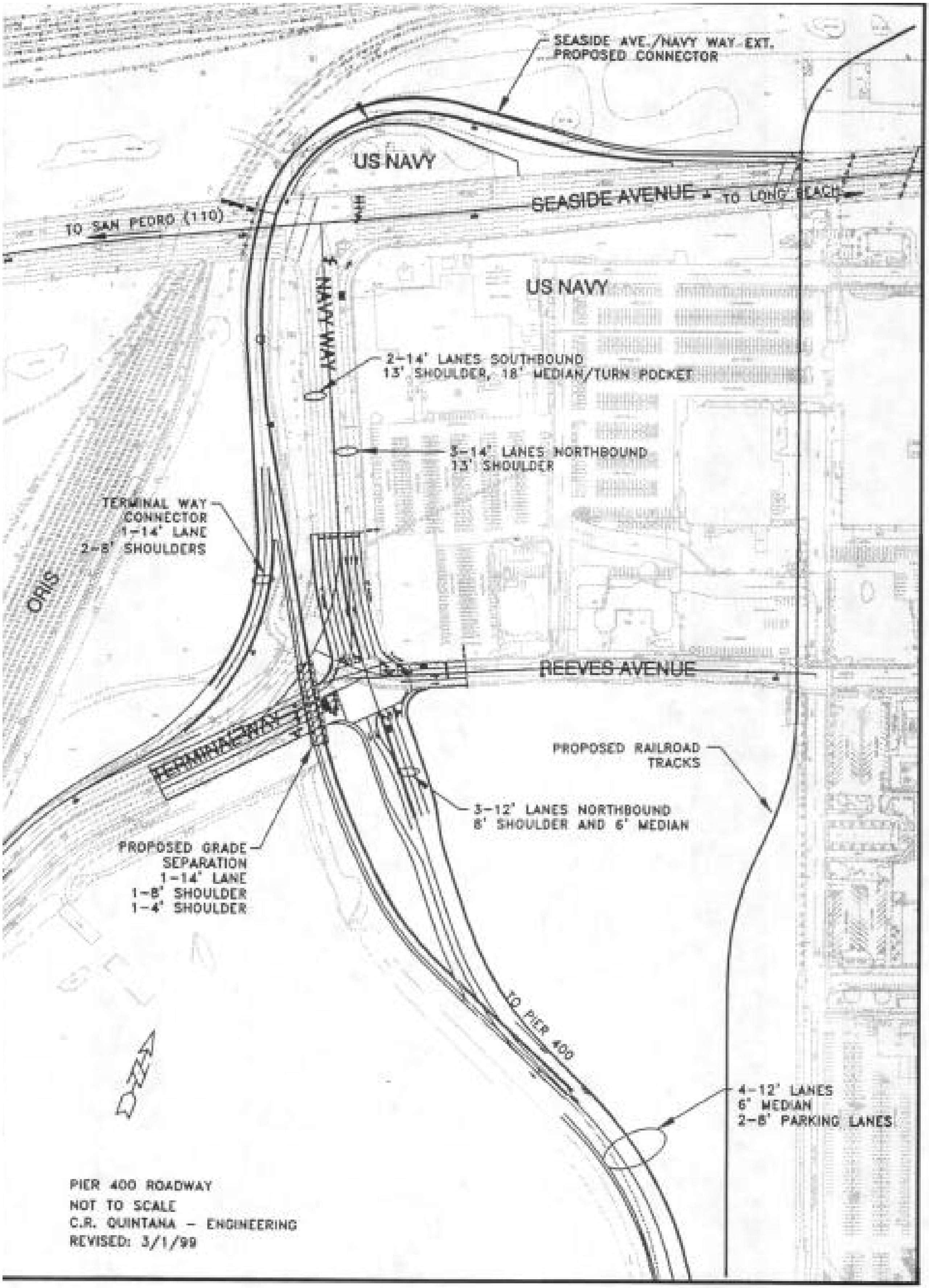


Figure 1-3. Pier 400 Transportation Corridor - Navy Mole Overhead Rail Alignment

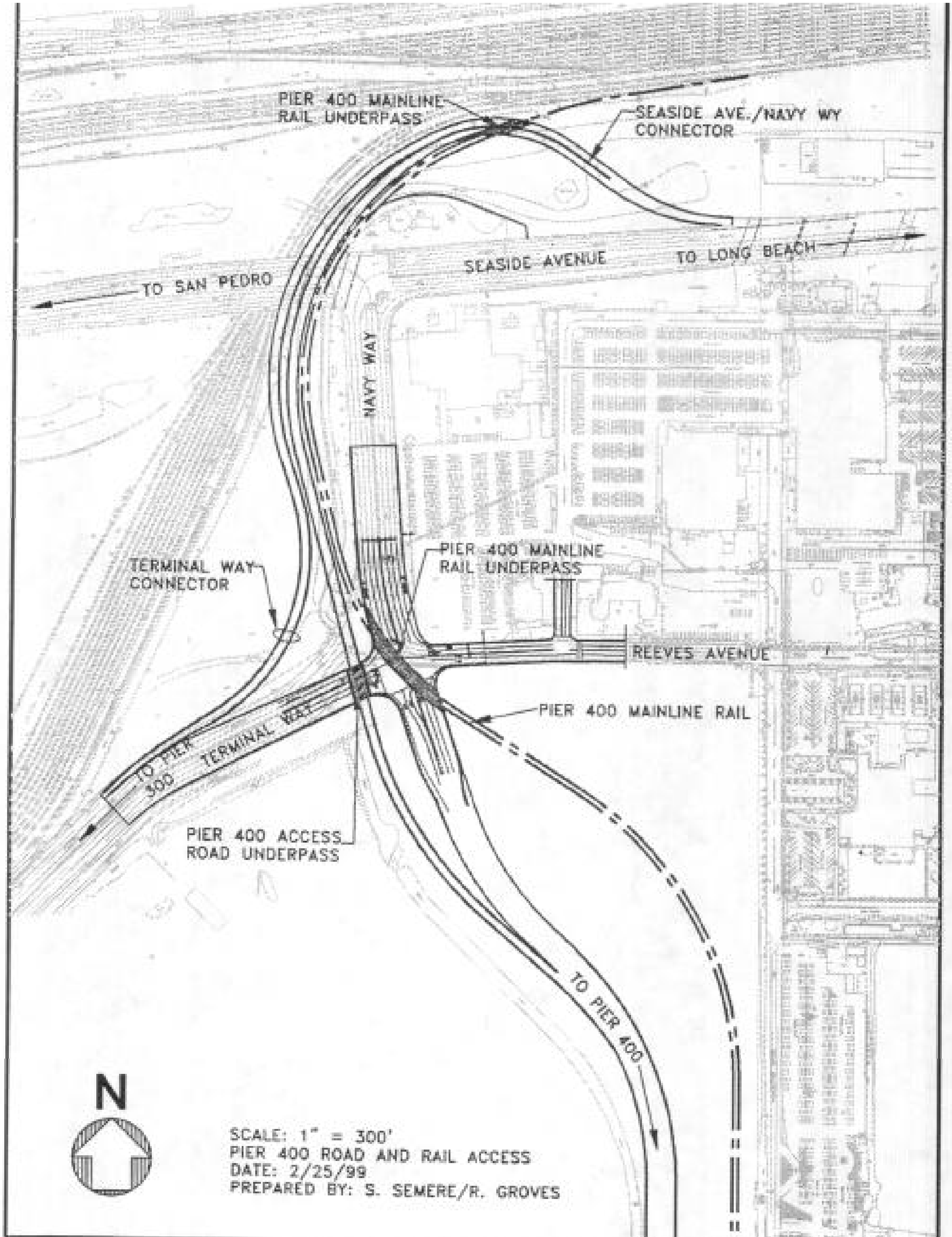


Figure 1-4. Pier 400 Transportation Corridor - Navy Way Overhead Rail Alignment

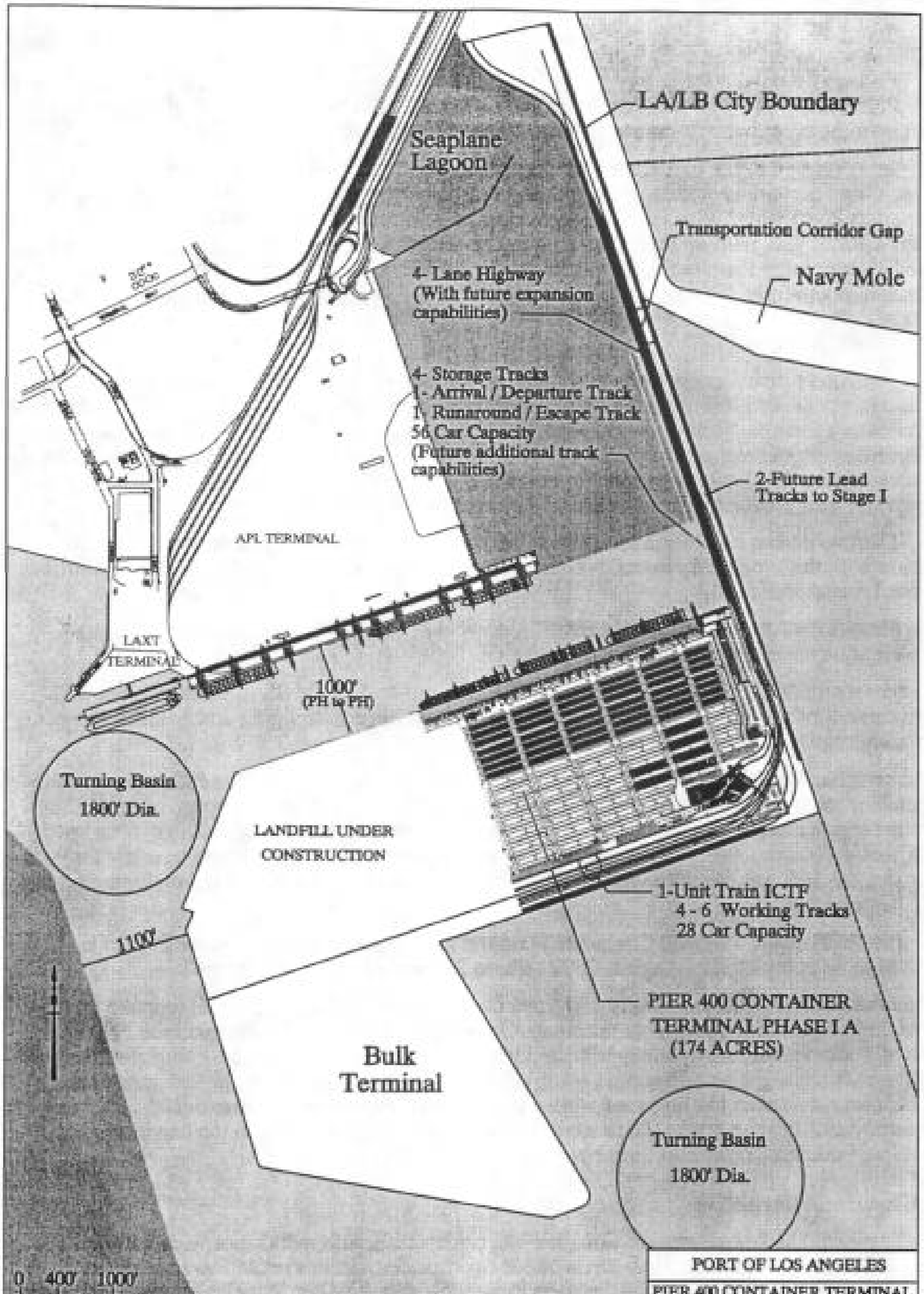


Figure 1-5. Pier 400 Container Terminal. Phase 1A

Phase 2A of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in January, 2003. Phase 2A includes (see Figure 1-6):

- The construction of the remaining 171 acres of the Pier 400 Stage II Landfill to make up a 345 acre, fully operational, container terminal. The completed facility will include a five post- Panamax berth wharf with 100 feet gage crane rails (option for an additional berth), a two-unit train loading yard with up to six working tracks (56-305' car capacity), rail storage tracks (dedicated inbound and outbound tracks on the corridor), and multiple buildings to support terminal operations.

Alternative Design

The Alternative Design is the two-phase development of Pier 400 Stage II into a 510 acre container terminal with full rail, highway, and utility access. There is no customer identified for the Alternative Design. Therefore, to avoid delays, a generic terminal design will be implemented. This identifies project elements which can be implemented with or without customer input. Design schedules will be developed with specific no-later-than dates for customer input. Some design elements can then proceed in the absence of a customer.

The two phases of Alternative Design the will be identified as Phase 1B and 2B to avoid confusion with the Proposed Project, which is also a two-phase project, which will be identified as Phase 1A and Phase 2A.

Phase 1B of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in mid 2001. Phase 1B includes:

- The construction of rail and highway access leading to and on the transportation causeway. The causeway was constructed as part of the Pier 400 Stage I Dredging and Landfill Project. Two alternative rail corridors are being considered (see Figures 1-3 & 1-4).
- The construction of 340 acres of the Pier 400 Stage I and II Landfill into a fully operational, container terminal (see Figure 1-7). This includes a 20-acre full gate complex with buildings, entrance gate complex, and parking; a five post-Panamax berth wharf (5,300 feet long) with 100 feet gage crane rails; and intermodal rail capabilities including a minimum of eight working tracks (100-305' car capacity) and rail storage tracks (dedicated inbound and outbound tracks on the corridor).

Phase 2B of the Pier 400 Container Terminal and Transportation Corridor Project is scheduled to be completed in August, 2002. Phase 2B includes (see Figure 1-8):

- The construction of the remaining 170 acres of the Pier 400 Stage II Landfill to make up a 510 acre, fully operational, container terminal. Construction will include approximate 3,000 linear feet of additional berthing, and marine and longshore toilet buildings. The completed facility will include an eight post-Panamax berth wharf (8,300 feet long) with 100 feet gage crane rails, a four-unit train loading yard with a minimum of eight working tracks (100-305' car capacity), rail storage tracks (dedicated inbound and outbound tracks on the corridor), and multiple buildings to support terminal operations.

Gap Closure Alternative

The Pier 400 Transportation Corridor was constructed with a 350-foot wide gap in it. A single-lane access bridge across the gap is under construction. Issues related to appropriate design for the Pier 400 Transportation Corridor were to be refined during the Final Design and permitting phase of the Deep Draft Navigation Improvements Project. Due to time constraints, the Los Angeles Harbor Department opted to include the gap in the Pier 400 Transportation Corridor in lieu of conducting additional water quality modeling to further characterize effects on water quality and indirectly on biota in these areas. Since that time, the Los Angeles Harbor Department has concluded that the long-term effects of having a bridge that spans this gap is not a preferred

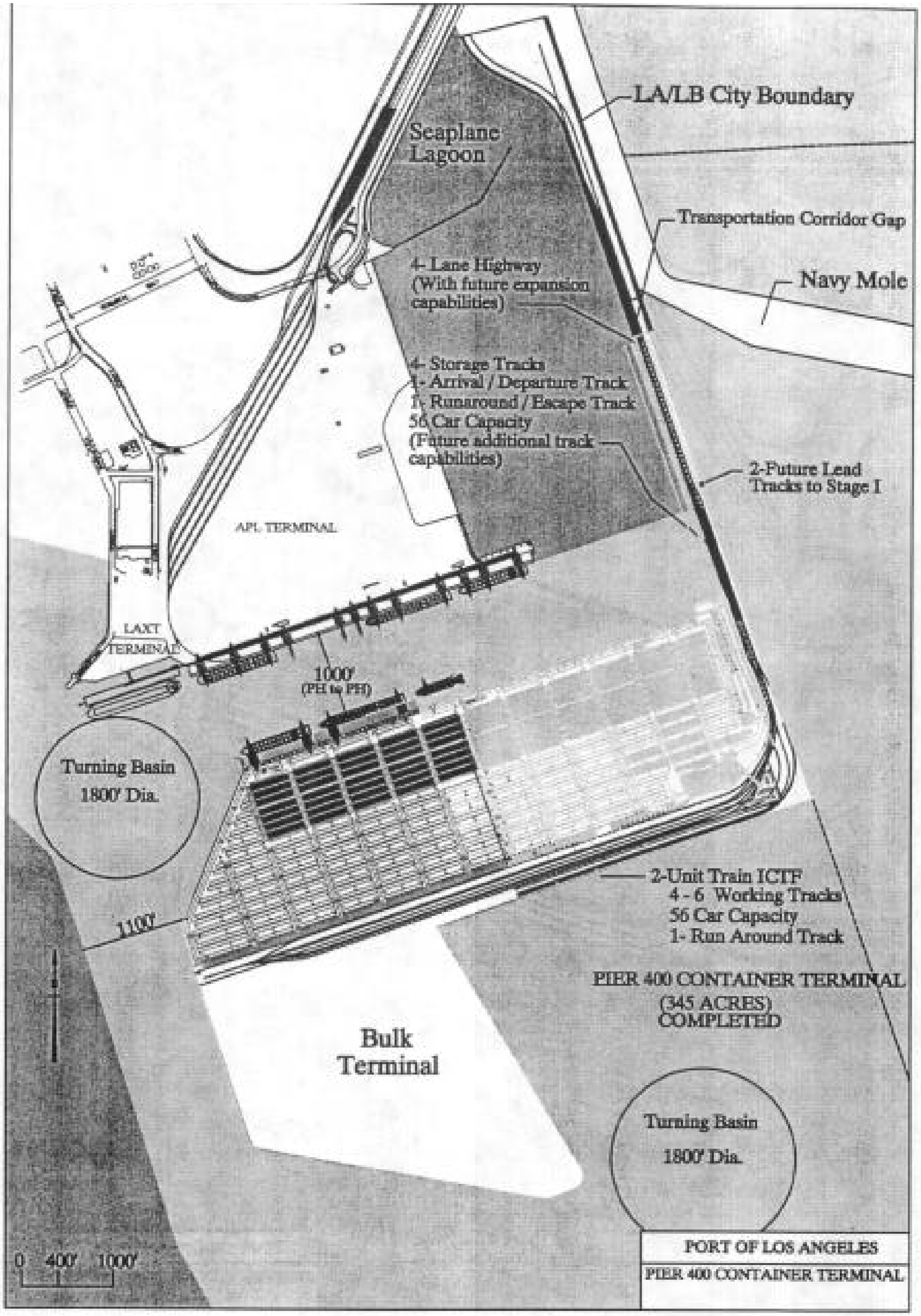


Figure 1-6. Pier 400 Container Terminal Phase 2A

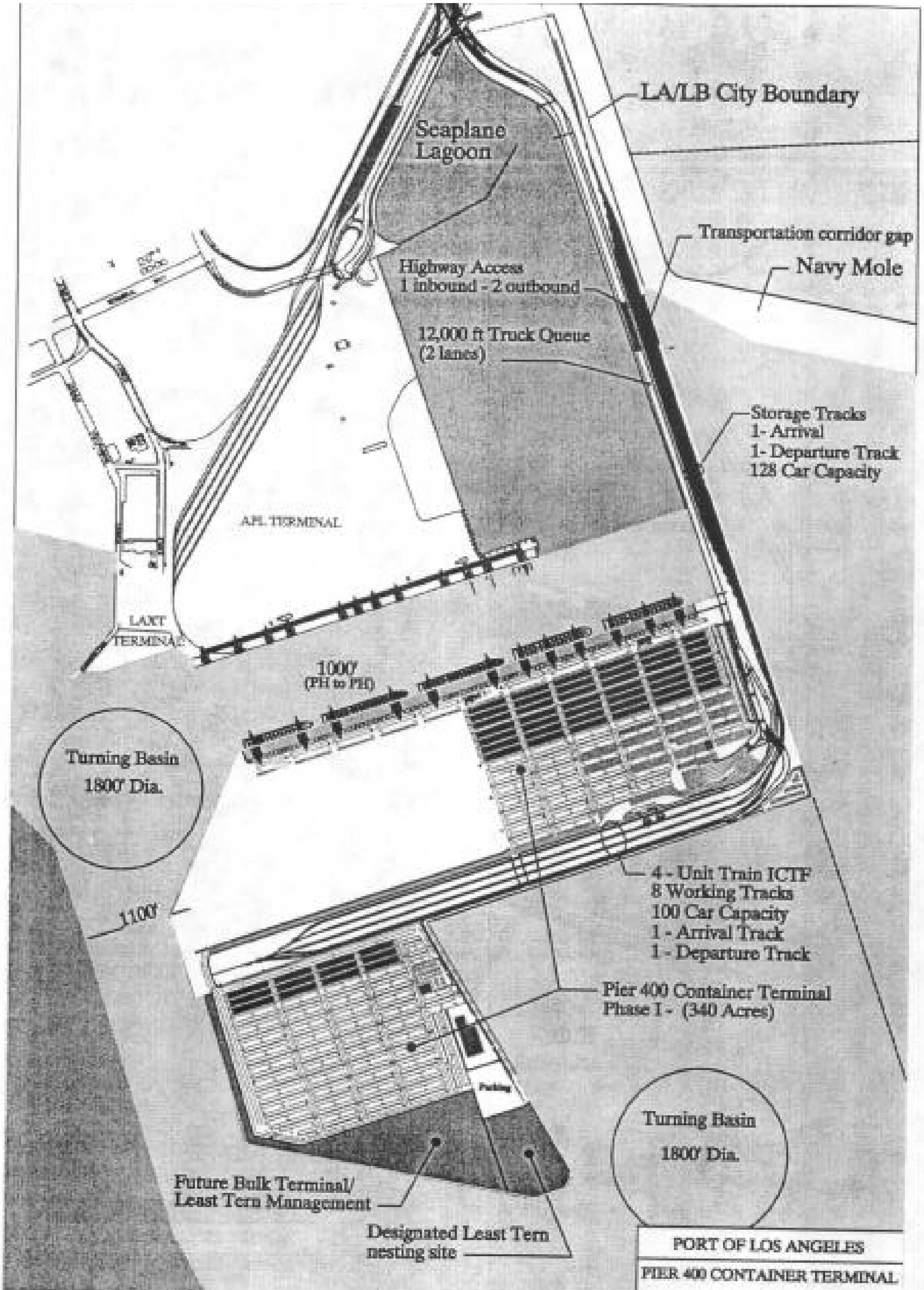


Figure 1-7. Pier 400 Container Terminal. Phase 1B

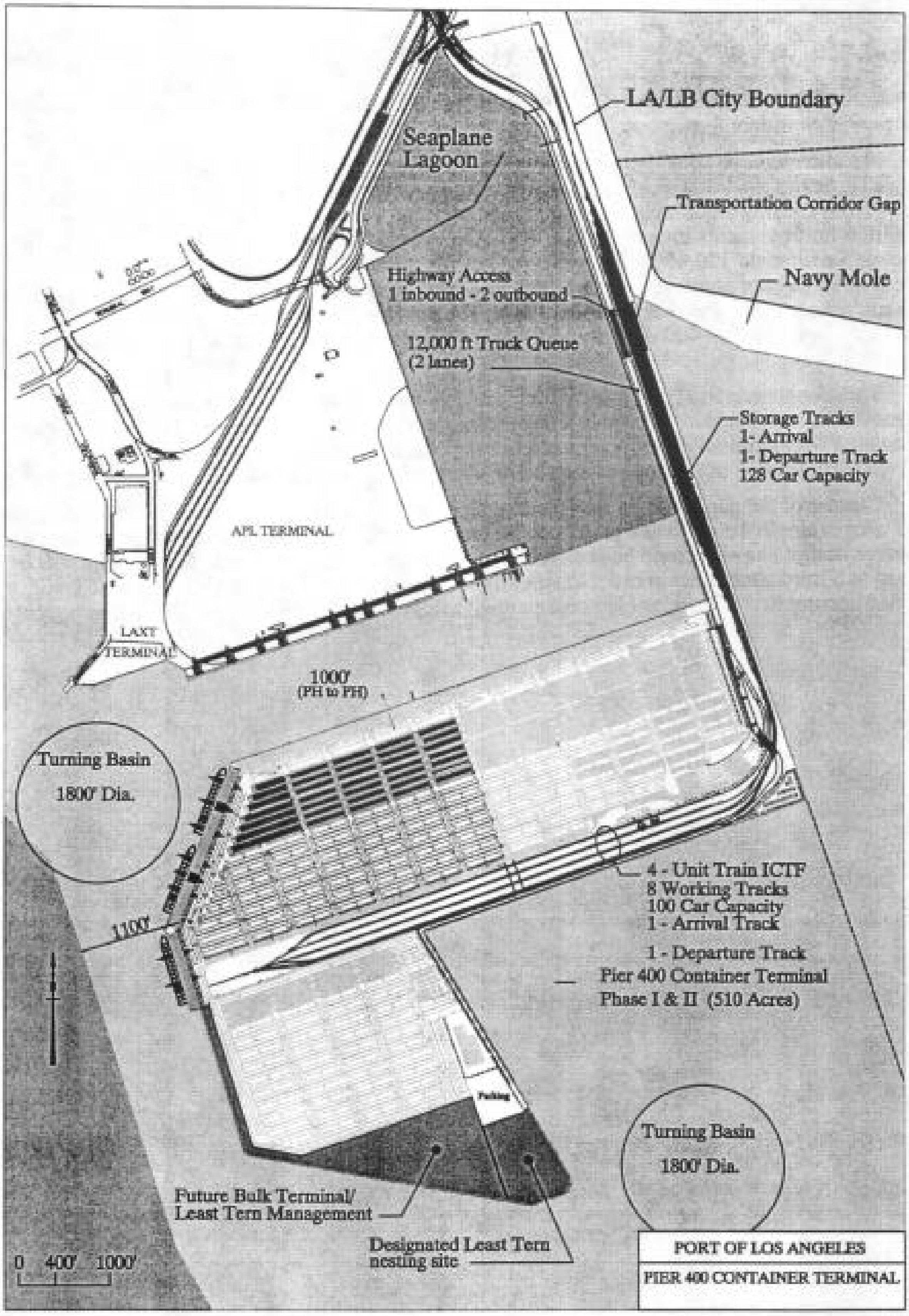


Figure 1-8. Pier 400 Container Terminal. Phase 2B

alternative. This is based on improved rail operations, long term maintenance, cost, and construction considerations.

An alternative to constructing a bridge across the gap is to fill in the gap as originally proposed creating a solid, unbroken transportation corridor (see Figures 1-2 & 1-9). Construction impacts from creating an unbroken transportation corridor were included in the Deep Draft Navigation Improvements Program EIS/EIR (LAHD AND USACE, 1992). Filling the gap will require approximately 120,000 cubic yards (cy) of fill material, 35,000 cy of rock slope protection, 90 days of construction time, and will result in the loss of approximately 2.7 acres of water surface area (measured at +4.8’ MLLW). The construction of the gap closure would be added to the ongoing Pier 400 dredge and landfill project with minimal if any, impacts to the larger project schedule.

This Supplemental Environmental Impact Report will assess impacts resulting from construction of transportation facilities along the entire transportation corridor. This construction is associated with terminal development and is independent of filling the gap. Operation of proposed facilities will not change as a result of this modification and will not be addressed.

Closure of the gap could be associated with either of the two design alternatives discussed above. For example the proposed project could be built either with the gap bridged or filled. The alternative design likewise could be built with the gap either bridged or filled. Gap closure will be assessed as a third alternative in order to simplify the impact assessment and keep the SEIR as short and uncomplicated as possible consistent with full disclosure.

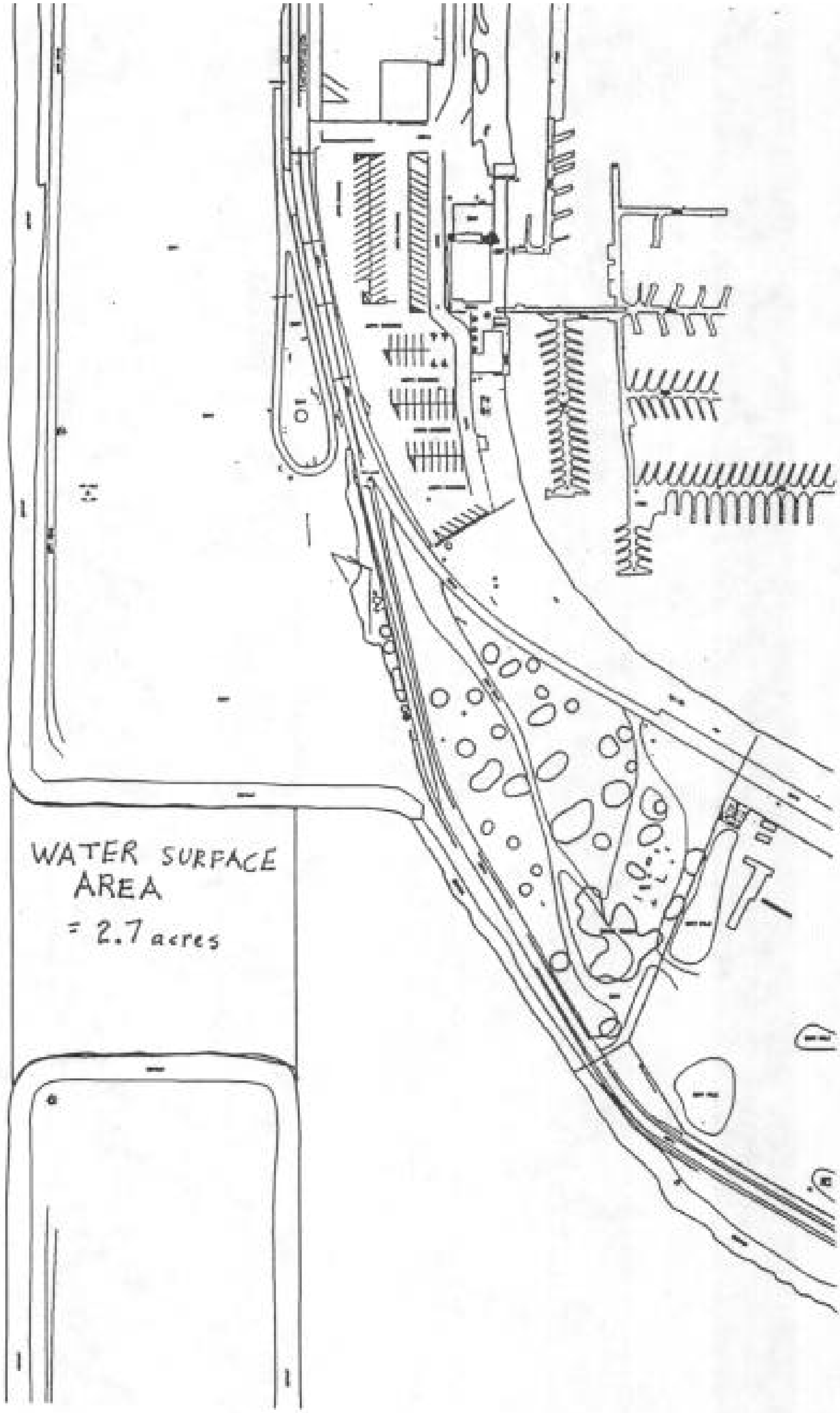


Figure 1-9. Pier 400 Gap Fill

200'

SECTION 2

SEIR USE, RELATED PROJECTS, AND RELATIONSHIP TO PLANS

SECTION 2
SEIR USE, RELATED PROJECTS, AND RELATIONSHIPS TO PLANS

2.1 INTENDED USE OF SEIR

In accordance with CEQA, this Supplemental Environmental Impact Report (SEIR) assesses potential impacts associated with the Pier 400 Container Terminal and Transportation Corridor Project. The LAHD is the lead agency for this SEIR, and has supervised its preparation. LAHD will have approval authority for the proposed project.

Other agencies will use this SEIR as the basis for their decisions to issue any approvals and/or permits which may be required. A list of agencies that are expected to use the SEIR for these purposes is provided on Table 2-1.

2.2 RELATED PROJECTS

Twenty-two projects have been identified in the vicinity of PIER 400. Twelve projects have been approved and are under or pending construction, and the remainder are unapproved projects under review. These projects are summarized on Table 2-2, and their locations in relationship to the proposed project are shown in Figure 2-1. The potential cumulative impacts of these projects, in association with the proposed project, are discussed under the various disciplines in Section 3, Environmental Setting, Impacts, and Mitigation, and in Section 5, Long Term Implications of the Project.

2.3 RELATIONSHIP TO STATE, REGIONAL, AND LOCAL PLANS AND STATUTES

A primary objective of the planning process for the proposed project is ensuring that the criteria and guidelines of relevant plans and policies are defined and met. The following discussion addresses how the proposed project will comply with these plans.

2.3.1 Port of Los Angeles Master Plan

The Port of Los Angeles Master Plan (POLA, 1979) provides for the development, expansion, and alteration of the Port, in both short-term and long-term periods, for commerce, navigation, fisheries, port-dependent activities, and general public recreation. Those objectives are consistent with the provisions of the California Coastal Act (1976), the Charter of the City of Los Angeles, and applicable federal, state, and municipal laws and regulations. The Port Master Plan does address the construction and operation of a container terminal on Pier 400. The Pier 400 Container Terminal and Transportation Corridor Project, therefore, will not require preparation of an amendment to the Port of Los Angeles Master Plan

2.3.2 California Coastal Plan

The Port Master Plan has been approved by the Los Angeles Board of Harbor Commissioners and certified by the California Coastal Commission. Under provisions of the California Coastal Act, the Port Master Plan is incorporated into the local coastal program of the City of Los Angeles. The Port has coastal development permit authority for activities on Pier 400.

The proposed project is consistent with the California Coastal Act, particularly with goals identified in Chapter 3, Article 7 - Industrial Development. The proposed use of the site is coastal-dependent (must be on or adjacent to the sea in order to function). It is also consistent with Chapter 8, Article 2 - Policies. The proposed project would use land for port purposes by encouraging shipping, and by improving support and access facilities.

Table 2-1 Responsibilities of Agencies Expected to Use This SEIR

Agency	Responsibilities
FEDERAL	
U.S. Coast Guard (USCG)	Jurisdiction over marine facilities and over Marine Terminal Operations Plan, for transportation-related onshore and offshore facilities capable of transferring oil in bulk.
U.S. Environmental Protection Agency (USEPA)	Responsible under Section 102 of the Marine Protection, Research and Sanctuaries Act for evaluating dredge materials for suitability for ocean disposal. Consultation role to the U.S. Army Corps of Engineers under the Fish and Wildlife Coordination Act. Oversees federal air pollution programs under the Clean Air Act, including conformity determinations.
U.S. Fish and Wildlife Service	Consultation role to the U.S. Army Corps of Engineers under the Fish and Wildlife Coordination Act, the Endangered Species Act, and the Marine Mammals Protection Act.
National Marine Fisheries Service (NMFS)	Consultation role to the U.S. Army Corps of Engineers under the Fish and Wildlife Coordination Act and the Endangered Species Act.
U.S. Army Corps of Engineers (USACE)	Permitting authority under Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research and Sanctuaries Act.
STATE/REGIONAL	
California Department of Fish and Game	Review and submit recommendations in accordance with CEQA and the Fish and Wildlife Coordination Act.
California Regional Water Quality Control Board, Los Angeles Region (RWQCB)	Permit authority for Waste Discharge Orders and National Pollutant Discharge Elimination System (NPDES) permits, for discharge of wastewater into surface waters. Permit authority for dredging and dredged material disposal activities.
State Lands Commission (SLC)	The SLC has oversight responsibility for tidal and submerged lands legislatively granted in trust to local jurisdictions. The SLC has adopted regulations for the inspection and monitoring of marine terminals. The SLC inspects and monitors all marine facilities for effects on public health, safety, and the environment.
California Air Resources Board (CARB)	Coordinates and oversees both state and federal air pollution control programs in California. The CARB retains permit authority for mobile sources.
South Coast Air Quality Management District (SCAQMD)	Has permit authority over stationary and area sources for approving emissions from construction and operation of emission-producing equipment, and for regulating air toxics and other air quality nuisance sources. Prepares the South Coast Air Basin AQMP. Has review and approval authority for various air quality plans required by various rules.
California Coastal Commission	Review and submit recommendations in accordance with CEQA and the California Coastal Act.

Table 2-1 Responsibilities of Agencies Expected to Use This SEIR (continued)

Agency	Responsibilities
STATE/REGIONAL (continued)	
Southern California Association of Governments (SCAG)	SCAG is responsible for developing regional plans for transportation management, growth, and land use, as well as developing the growth factors used in forecasting air emissions in the South Coast Air Basin. SCAG has developed a Growth Management Plan (GMP), a Regional Housing Needs Assessment, a Regional Mobility Program (RMP), and, in cooperation with the SCAQMD, the AQMP.
LOCAL	
City of Los Angeles	Issue building and grading permits.
City of Los Angeles, Harbor Department	Leasing authority for Port of Los Angeles land. Permit authority for engineering and construction. Lead Agency for SEIR.
	Issue Coastal Development Permits for activities included in an approved Port Master Plan

2.3.3 City of Los Angeles - Port of Los Angeles Plan

The Port of Los Angeles Plan is part of the General Plan for the City of Los Angeles (Los Angeles, City of, 1982a). This plan provides a 20-year official guide to the continued development and operation of the Port. It is designed to be consistent with the Port Master Plan discussed above in Subsection 2.3.1. Long-range preferred water and land use for the Port, include general cargo, commercial fishing operations, and Port related commercial and industrial uses. However, these preferred goals are subject to the following criteria: (1) changes in economic conditions that affect the types of commodities traded in waterborne commerce, (2) the economic life of existing facilities handling or storing hazardous cargoes, and (3) precautions deemed necessary to maintain national security. The Port of Los Angeles has been, continues to be, and is expected to remain, a vital trade component for the southern California region.

2.3.4 City of Los Angeles - San Pedro Community Plan

As part of the General Plan of the City of Los Angeles, the San Pedro Community Plan serves as the basis for future development of the community (Los Angeles, City of, 1982b). It also constitutes the land use plan portion of the City's Local Coastal Program for San Pedro. The Port of Los Angeles, although it is contiguous to San Pedro, is not part of the San Pedro Community Plan area. However, the San Pedro Community Plan does make recommendations regarding the Port, particularly for areas adjacent to commercial and residential areas of San Pedro. These areas include Cabrillo Beach, East and West Channels, and the West Bank of the Main Channel south of the Vincent Thomas Bridge. Although the District Plan does not include the project area, the plan recommends integrating future development of the Port with the San Pedro community, including changes to transportation and circulation systems, and Port land acquisitions. The proposed project is consistent with these recommendations.

An objective of the San Pedro Community Plan, related to the proposed project, is to promote the orderly and continued development of the Port of Los Angeles to meet the needs of transporting and handling cargo. The proposed project would continue the Port of Los Angeles' ability to handle cargo efficiently, and meet the needs of southern California.

2.3.5 City of Los Angeles - Wilmington-Harbor City District Plan

The Wilmington - Harbor City District Plan is a part of the General Plan of the City of Los Angeles (Los Angeles, City of, 1990). It provides an official guide to future development of the district. The proposed project is located in an area south of, and adjacent to, the Wilmington-Harbor City District. Although the District Plan does not include the project area, the plan recommends integrating future development of the Port with the Wilmington community, including changes to transportation and circulation systems, and Port land acquisitions. The plan also recommends inter-agency coordination in the planning and implementation of Port projects to facilitate efficiency in Port operations, and to serve the interests of the adjacent communities. The proposed project is consistent with these recommendations.

2.3.6 City of Los Angeles General Plan - Air Quality Element

The City of Los Angeles has an Air Quality Element (Los Angeles, City of, 1992) that contains general goals, objectives, and policies related to improving air quality in the region. Policy 5.1.1 relates directly to the Port, and requires improvements in Harbor operations and facilities in order to reduce emissions. The LAHD is actively planning for and pursuing such improvements.

2.3.7 Water Quality Control Plan - Los Angeles River Basin

The Water Quality Control Plan for the Los Angeles River Basin (Region 4) was adopted by the Regional Water Quality Control Board, Los Angeles Region (RWQCB) in 1978 and updated in 1994 (RWQCB, 1994). The Basin Plan designates beneficial uses of the basin's water resources. The Basin Plan describes water quality objectives, implementation plans, and surveillance programs to protect or restore designated beneficial uses. The proposed project would be operated in conformance with objectives of the Water Quality Control Policy.

2.3.8 Water Quality Control Policy - Enclosed Bays and Estuaries of California

In 1974, the State Water Resources Control Board (SWRCB) adopted a water quality control policy that provides principles and guidelines to prevent degradation, and to protect the beneficial uses of waters of enclosed bays and estuaries (SWRCB, 1974). Los Angeles Harbor is considered an enclosed bay under this policy. Activities, such as the discharge of effluent, thermal wastes, radiological waste, dredge materials, and other materials that adversely affect beneficial uses of the bay and estuarine waters are addressed. Waste discharge requirements developed by the RWQCB, among other requirements, must be consistent with this policy. The LAHD will work closely with the RWQCB to obtain approvals and necessary permits for implementation of the proposed project.

2.3.9 Air Quality Management Plan

The U.S. Environmental Protection Agency (USEPA), under the provisions of the Clean Air Act, requires each state that has not attained the National Ambient Air Quality Standards (NAAQS) to prepare a separate local plan detailing how these standards will be met in each local area. These plans will be prepared by local agencies designated by the governor of each state, and incorporated into a State Implementation Plan (SIP). The Lewis Air Quality Act of 1976 established the four-county South Coast Air Quality Management District (SCAQMD) and mandated a planning process requiring preparation of an Air Quality Management Plan (AQMP). The plan is reviewed every two years and revised as necessary. The SCAQMD and Southern California Association of Governments (SCAG) jointly prepared an AQMP, which was adopted by the two agencies on July 12, 1991. The 1991 AQMP was subsequently revised in 1994 and adopted by the SCAQMD Governing Board on September 16, 1994. The 1994 AQMP is designed to meet California Clean Air Act and Federal Clean Air Act requirements. The 1994 AQMP was approved by California Air Resources Board (CARB) and submitted to USEPA in November, 1994. Proposed Projects in the Basin will be evaluated for conformity with the provisions of the 1994 Plan. Conformity findings are based on the most recently USEPA-approved SIP. The 1994 SIP was approved by the USEPA in September, 1996. Consistency findings are based on the recently approved AQMP. The 1997 AQMP was approved by the CARB and forwarded to the USEPA on February 5, 1997.

2.3.10 Southern California Association of Governments Regional Plans

SCAG is responsible for developing regional plans for transportation management, growth, and land use, as well as developing the growth factors used in forecasting air emissions within the South Coast Air Basin. SCAG has developed a Growth Management Plan (GMP), a Regional Housing Needs Assessment, a Regional Mobility Plan (RMP), and in cooperation with the SCAQMD, the AQMP.

Since the proposed project would not generate population migration into the area, or create a demand for new housing units, it is consistent with the GMP and the Regional Housing Needs Assessment.

The proposed project is consistent with SCAG's Regional Mobility Plan.

2.3.11 Tidelands Trust

The Tidelands Trust granted submerged landside tidelands, within the Port of Los Angeles, which are impressed with the Common Law Public Trust, to the City of Los Angeles. The Port of Los Angeles jurisdictional properties are held in trust by the City, and administered by the City's Harbor Department to promote and develop maritime-related commerce, navigation, and fisheries.

2.3.12 Congestion Management Plan

The Congestions Management Program is a state-mandated program intended as the analytical basis for transportation decisions made through the State Transportation Improvement Program process (LACMTA, 1993). As mandated by state Assembly Bill 471 (1989), and amended by state Assembly Bills 1791 (1990), 1435 (1992), and 3093 (1992), the Los Angeles County Metropolitan Transportation Authority (LACMTA) has prepared a Congestion Management Plan (CMP) for the county. The CMP was developed to: (1) link land use, transportation, and air quality decisions; (2) develop a partnership among transportation decision makers on devising appropriate transportation solutions that include all modes of travel; and (3) propose transportation projects which are eligible to compete for state gas tax funds.

The CMP includes a Land Use Analysis Program which requires local jurisdictions to analyze the impacts of land use decisions on the regional transportation system. Development projects required to prepare an SEIR based on local determination must incorporate a Transportation Impact Analysis into the SEIR. Since the proposed project does not involve significant transportation impacts, it is consistent with the CMP and Land Use Analysis Program.

2.3.13 Impacts on Public Water Systems

The CEQA Guidelines (Section 15083.5) contains a new provision regarding required consultation between cities, counties, and water supply agencies. The Pier 400 Container Terminal and Transportation Corridor Project does not meet any of the criteria listed in Section 15083.5(a) for applying this new provision. Notwithstanding the above, the Los Angeles Harbor Department has discussed both fire fighting and daily use requirements of the proposed facility with the applicable agency to ensure that adequate water supplies are available.

Table 2-2
Projects in the Proposed Project Vicinity

Project/Location	Description	Status
1.a. Los Angeles Terminals Abandonment and Cleanup Berths 149-150/ Wilmington	The proposed project is an abandonment and cleanup of the Los Angeles Terminals liquid bulk terminal at Berths 149-150 in the Wilmington District of the Port of Los Angeles. The terminal received caustics, phosphoric acid and chlorinated solvents by barge, tanker, and rail car for distribution by truck and rail car into the southern California region.	Unapproved project. Currently under LAHD review.
1.b. Unocal Marine Oil Terminal Lease Renewal Project Berths 148-151/ Wilmington	The proposed project is a 25-year lease renewal for the Unocal liquid bulk facility at Berths 148-151 in the Wilmington District of the Port of Los Angeles. The proposed project involves the remediation of soil and groundwater at the site; there are no site improvements. It is unresolved how Tosco's acquisition of Unocal will affect this project.	Unapproved project. EIR completed. Under LAHD review.
2. Wickland Oil Company Environmental Improvements, Facility Modifications, Ownership Transfer, and Lease Renewal of Berths 163-164/ Wilmington	The proposed project is a 20-year lease renewal for the Wickland Oil liquid bulk facility at Berths 163-164 on Mormon Island in the Wilmington District of the Port of Los Angeles. The project includes change in ownership, implementation of a soil and groundwater cleanup program, minor facility modifications, installation of a cargo pipeline to Berths 171-173, and potential change in product types.	Approved project. Under construction.
3. Wharf and Backland Improvements Project/Berths 142-147/ Wilmington	The proposed project involves the redevelopment of Berths 142-147. Redevelopment is expected to consist of an 87.5-acre container or omni terminal. The project includes wharf modifications which would require the removal of approximately 100,000 to 120,000 cubic yards of dredged material. Backland grades would be modified as necessary.	Approved project. EIR completed. Currently under LAHD review.
4. Alameda Corridor (formerly Consolidated Transportation Corridor)/Los Angeles County	The project involves construction of a 20 mile, $1.8 billion highway/rail transportation corridor serving the Los Angeles and Long Beach Harbors. Project will include widening Alameda Street to six lanes, double-tracking the rail line, and construction of 16 grade separations and other improvements along the corridor. The project is being developed under the Alameda Corridor Transportation Authority (ACTA) (formerly a Joint Powers Authority involving the two Harbor departments, the Cities of Los Angeles and Long Beach, the six affected cities along the corridor, Los Angeles County Transportation Commission, the Los Angeles County Board of Supervisors, and Caltrans).	Approved project. Under construction.

Table 2-2
Projects in the Proposed Project Vicinity

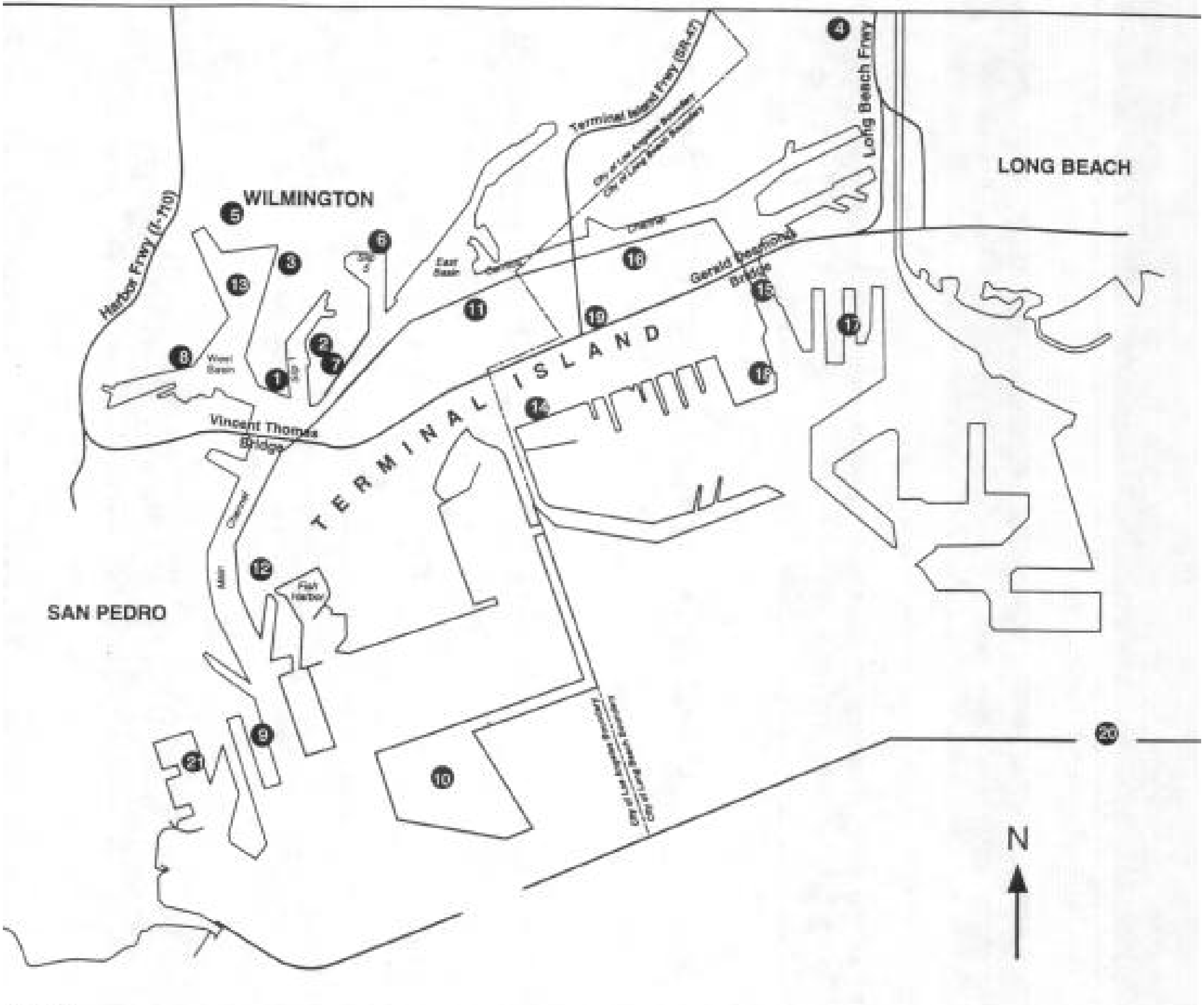
Project/Location	Description	Status
5. Harry Bridges Boulevard Realignment Project/ Wilmington	The proposed project involves realignment of Harry Bridges Boulevard and "C" Street in Wilmington. The project includes: acquisition of properties between Harry Bridges Boulevard and "C" Street from Figueroa to Broad Avenue, and south of Harry Bridges Boulevard between Lagoon and Alameda Streets [Department of Water and Power property excluded]; construction of a realigned Harry Bridges Boulevard between John S. Gibson Boulevard and Avalon Boulevard; widening the existing Harry Bridges Boulevard centerline on both sides between Avalon Boulevard and Broad Avenue and on the south side between Broad Avenue and Alameda Street to major highway standards.	Approved project. Construction pending.
6. Bannings Landing Waterfront Access Project/ Wilmington	The project is the development, on Port property south of Water Street at berths 184-185, of a 10,000 square foot building suitable for community meetings, functions and displays showcasing port and community activities. The project includes parking, a waterfront promenade, monument signage, and Avalon Boulevard streetscape from the site to Harry Bridges Boulevard.	Approved project. Under construction.
7. GATX Lease Renewal for Berths 171-173/ Wilmington	The proposed project is a 30 year lease renewal for the GATX liquid bulk facility at Berths 171-173 in the Wilmington District of the Port of Los Angeles. The project involves wharf replacement and other minor facility improvements, dredging, and the remediation of soil and groundwater at the site.	Approved project. Under construction.
8. GATX Lease Renewal for Berths 118-119/ San Pedro	The proposed project is a 25 year lease renewal for the GATX liquid bulk facility at Berths 118-119 in the San Pedro District of the Port of Los Angeles. The project involves the remediation of soil and groundwater at the site. There are no major facility modifications nor changes in proposed operations.	Approved project. Under construction.
9. GATX Lease Renewal for Berths 70-71/San Pedro	The proposed project is a 20 year lease renewal for the GATX liquid bulk facility at Berths 70-71 in the San Pedro District of the Port of Los Angeles. The project involves the remediation of soil and groundwater at the site.	Approved project. Under construction.

Table 2-2
Projects in the Proposed Project Vicinity

Project/Location	Description	Status
10. Deep Draft Navigation Improvements/Port of Los Angeles	The project involves modification of existing navigational channels and turning basins and creation of new channels, and eventual construction of approximately 582 acres of additional landfill for Pier 400 in the Port of Los Angeles. Separate environmental documents will be prepared for individual terminals expected to be developed on the landfill in the future.	Approved project. Under construction. First stage completed.
11. Hugo Neu-Proler Lease Renewal/Terminal Island	The proposed project is a renewal of a lease to Hugo Neu-Proler to operate a scrap metal receiving, processing, and shipping facility at Berths 210-211 in the Terminal Island District of the Port of Los Angeles. The project involves the remediation of soil and groundwater at the site and facility upgrades.	Approved project.
12. Evergreen Backlands Improvements and Fish Harbor Planning Study Project/ Terminal Island	Evergreen is proposing to lease a 125-acre parcel from the Los Angeles Harbor Department with the capability to expand into five expansion parcels as their future growth requires. Expansion parcel improvements would consist of demolition of existing facilities; construction of heavy-duty pavement, lighting, fire hydrants, drainage systems, and striping. Other improvements presently identified for these parcels are: Parcel A - resurface as necessary, restripe, and construct a marine building; Parcel B - construct heavy-duty pavement, stripe area, and realign Terminal Way; and Parcel C - demolish existing facilities, construct heavy-duty pavement, realign entrance including relocation or new construction of: scales, speaker pedestals, and guard booths, and improve Cannery Street. Expansion parcel D will be addressed when it is incorporated into the Evergreen Terminal in 1999. Expansion parcel E was addressed in a Negative Declaration prepared by the Los Angeles Harbor Department in 1994.	Unapproved project. EIR in progress. Currently under LAHD review.
13. West Basin Transportation Improvements Program	This program consists of a number of measures to optimize and expand existing containerized operation in the West Basin Area of the Port of Los Angeles. The major program element is the construction of a near-dock intermodal rail yard in the West Basin which will shift container transport from trucks to rail. Other program elements include wharf renovation, expansion, and dredging; construction of one or more grade separations; removal of an existing rail transit yard and demolition of warehouses for backland expansion; and construction of various gate and containerized support facilities. A second phase of the program would remove Knoll Hill behind Berths 97-109 to allow for terminal expansion and improved transportation infrastructure in that area. The program includes the Berth 142-147 Wharf and Backlands Improvements Project (see No. 3 above) and the Harry Bridges Boulevard Realignment Project (see No. 10 above).	Approved project. EIR completed. Currently under LAHD review.

Table 2-2
Projects in the Proposed Project Vicinity

Project/Location	Description	Status
14. Pier T Marine Terminal/ Long Beach	A marine container terminal would be constructed on the site of the former Naval Station and Naval Shipyard. The project would include dredging and wharf construction.	Approved project. Joint EIS/EIR certified.
15. Gerald Desmond Bridge Widening/ Long Beach	Improvements to existing roadways are anticipated to provide improvement to traffic operations, which would be a beneficial effect.	Unapproved project, under review.
16. Pier S Terminal Improvements/ Long Beach	Development of a 150-acre terminal; reconstruct a portion of the Cerritos Channel dike.	Unapproved project, under review.
17. California United Terminal Modification/ Long Beach	Expansion of an existing marine container terminal, wharf construction, on-dock rail yard, and relocation of existing uses.	Unapproved project, under review.
18. Berth T-121 Facility Modifications/ Long Beach	Install shore-side pumps to increase capacity of oil transport at deep-water berth.	Unapproved project, under review.
19. Ocean Boulevard/Terminal Island Freeway Interchange/ Long Beach	Construct grade separation flyover of eastbound to northbound left turn.	Unapproved project, under review.
20. Queens Gate Deepening Project/ Long Beach	Deepening the entrance and approach channel to a depth of -76 feet MLLW to accommodate large- deep-draft vessels transporting crude oil.	EIS/EIR completed. Currently under POLB & COE review.
21. West Channel/Cabrillo Marina Phase II Development Project	Develop the West Channel area of the Port of Los Angeles to replace deteriorated marina facilities with marine- and visitor-oriented retail facilities, a vessel stack storage facility, restaurants, tour/charter/rentals, yacht sales, marina facilities (including large recreational vessels), and special events.	Unapproved project, under review.



GEND

a. LA Terminals Abandonment and Cleanup
b. Unocal Marine Oil Terminal Lease Renewal Project
Wickland Oil, Berths 163-164 Lease Renewal
Berths 142-147 Wharf and Backlands Improvements
Alameda Corridor
Harry Bridges Boulevard Realignment Project
Banning's Landing
GATX, Berths 171-173 Lease Renewal
GATX, Berths 188-119 Lease Renewal
GATX, Berths 70-71 Lease Renewal
Deep Draft Navigation Improvement Project
Hugo Neu-Proler Lease Renewal

12. Evergreen Backlands Improvements and Fish Harbor Planning Study Project
13. West Basin Transportation Improvements Program
14. Pier T Marine Terminal
15. Gerald Desmond Bridge Widening
16. Pier S Terminal Improvements
17. California United Terminals
18. Berth T-121 Facility Modifications
19. Ocean Boulevard/Terminal Island Freeway Interchange
20. Queens Gate Deepening Project
21. West Channel/Cabrillo Marina Phase II Development Project

Figure 2-1 Related Projects in the Project Vicinity

SECTION 3

ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

3.1 METEOROLOGY AND AIR QUALITY

3.1.1 INTRODUCTION

Air quality in the immediate project area and surrounding region would be affected by emissions from the construction and operation of the proposed action. The following section includes descriptions of the affected air quality resource, predicted impacts of the proposed action, cumulative impacts of the proposed action and other projects in the region, and mitigations that would lessen significant impacts.

3.1.1.1 Data Sources

Additional information specific for this project is contained in special studies prepared for the Los Angeles Harbor Department by Science Applications International Corporation (SAIC, 1998a & 1998b).

3.1.2 ENVIRONMENTAL SETTING

3.1.2.1 Description of Resource

Air quality at a given location can be described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by comparing the concentration to an appropriate federal and/or state ambient air quality standard. The standards represent the allowable atmospheric concentrations at which the public health and welfare are protected and include a reasonable margin of safety to protect the more sensitive individuals in the population. Federal standards, established by the USEPA, are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS represent maximum acceptable concentrations that may not be exceeded more than once per year, except the annual standards, which may never be exceeded. The state standards, established by the California Air Resources Board (CARB), are termed the California Ambient Air Quality Standards (CAAQS). The CAAQS represent maximum acceptable pollutant concentrations that are not to be equaled or exceeded. The national and state ambient air quality standards are presented in Table 3.1-1. The pollutants of primary concern which are considered in this special study include reactive organic gases (ROG), ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), and particulate matter less than 10 microns in diameter (PM10).

3.1.2.2 Region of Influence

The project site is located in the Harbor District of the City of Los Angeles in the southwestern coastal area of the South Coast Air Basin (SCAB). The SCAB consists of the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The SCAB covers an area of approximately 15,500 square kilometers (6,000 square miles) and is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego County line.

Identifying the Region of Influence (ROI) for air quality requires knowledge of the types of pollutants being emitted, the emission rates and release parameters of the pollutant source (e.g., effluent temperature), the source proximity to other pollutant sources, and meteorological conditions. The ROI for inert pollutants (pollutants other than O3 and its precursors) is generally limited to a few miles downwind from a source. Thus, the ROI for emissions of inert pollutants from project construction and operational sources would occur within the coastal areas of the Los Angeles Harbor and along land-based transportation routes to and from the Pier 400 site.

The ROI for O3 can extend much farther downwind than for inert pollutants. Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. Ozone precursors are mainly the ROG portion of volatile organic

Table 3.1-1 National and California Ambient Air Quality Standards

			National Standards [a]	
Pollutant	*Averaging Time*	*California Standards*	*Primary* [b,c]	*Secondary* [b,d]
Ozone[e]	8-hour	—	0.08 ppm (160 µg/m³)	Same as primary
	1-hour	0.09 ppm (180 µg/m³)	0.12 ppm (235 µg/m³)	Same as primary
Carbon monoxide	8-hour	9 ppm (10 mg/m³)	9 ppm (10 mg/m³)	—
	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	—
Nitrogen dioxide	Annual	—	0.053 ppm (100 µg/m³)	Same as primary
	1-hour	0.25 ppm (470 µg/m³)	—	—
Sulfur dioxide	Annual	—	0.03 ppm (80 µg/m³)	—
	24-hour	0.04 ppm (105 µg/m³)	0.14 ppm (365 µg/m³)	—
	3-hour	—	—	0.5 ppm (1,300 µg/m³)
	1-hour	0.25 ppm (655 µg/m³)	—	—
PM_{10}	Annual (arithmetic mean)	—	50 µg/m³	Same as primary
	Annual (geometric mean)	30 µg/m³	—	—
	24-hour	50 µg/m³	150 µg/m³	Same as primary
$PM_{2.5}$[f]	Annual (arithmetric)	—	15 µg/m³	Same as primary
	24-hour	—	65 µg/m³	Same as primary
Lead	Calendar quarter	—	1.5 µg/m³	Same as primary
	30-day average	1.5 µg/m³	—	—

Notes:
(a) Standards, other than for ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
(b) Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.
(c) Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that states implementation plan is approved by the EPA.
(d) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
(e) The 8-hour ozone standard was promulgated in 1997, and will replace the 1-hour standard. However, the 1-hour standard will continue to apply to areas not attaining it for an interim period.
(f) The $PM_{2.5}$ standard (particulate matter with a 2.5 micron diameter) will be implemented over an extended time frame. Areas will not be designated as in attainment or nonattainment of this standard until the 2002-2005 time frame.

compounds (VOC) and nitrogen oxides (NOx). In the presence of solar radiation, the maximum effect of ROG and NOx emissions on O3 levels usually occurs several hours after they are emitted and many miles from the source. Ozone and O3 precursors transported from other regions can also combine with local emissions to increase local O3 concentrations. Therefore, the ROI for O3 may include much of the SCAB.

3.1.2.3 Regulatory Setting

Air quality regulations were first promulgated with the Federal Clean Air Act of 1969. This act established the NAAQS and delegated the enforcement of air pollution control regulations to the states. In California, the CARB is responsible for enforcing air pollution regulations. The CARB has in turn delegated the responsibility of regulating stationary emission sources to local air agencies. In the SCAB, the South Coast Air Quality Management District (SCAQMD) regulates stationary sources of air pollution. The following is a summary of the federal, state, and local air quality rules and regulations that apply to the project and its related activities.

3.1.2.4 Federal Statutes and Regulations

In areas that exceed the NAAQS, the CAA requires preparation of a State Implementation Plan (SIP), detailing how the state will attain the standards within mandated time frames. The Clean Air Act Amendments of 1990 (1990 CAA) revised the attainment planning process. The 1990 CAA identifies new emission reduction goals and compliance dates based upon the severity of the ambient air quality standard violation within a region.

3.1.2.5 State Regulations

The California Clean Air Act of 1988, as amended in 1992 (CCAA), outlines a program to attain the CAAQS for O3, NO2, SO2, and CO by the earliest practical date. Since the CAAQS are more stringent than the NAAQS, emissions reductions beyond what would be required to show attainment for the NAAQS will be needed. Consequently, the main focus of attainment planning in California has shifted from the federal to state requirements. Similar to the federal system, the state requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region.

3.1.2.6 Local Regulations

Attainment plans are strategies to reduce emissions to a level that will bring a region into attainment of an ambient air quality standard. Plans designed to attain the NAAQS are incorporated into a state's SIP. The SCAQMD and the Southern California Association of Governments (SCAG) first developed an Air Quality Management Plan (AQMP) for the SCAB in 1979 to demonstrate attainment of the NAAQS. This plan was approved by USEPA and helped to reduce emissions, but the SCAB did not attain the NAAQS. The 1979 AQMP was revised in 1982, but this plan was unable to show compliance with the O3 and CO NAAQS and was disapproved by the USEPA. Subsequent revisions to the 1982 AQMP in 1989 demonstrated attainment of all national and state standards by 2007, with the exceptions of the state standards for O3 and PM10. This plan contained short- and long-term emission control strategies and was partially approved by the USEPA as the SCAB portion of the California SIP. Subsequent to the passage of the CCAA by the California Legislature, the SCAQMD and SCAG completed the 1991 AQMP, which demonstrated attainment of all NAAQS, responded positively to CCAA performance tests, dealt with global climate change, addressed the stratospheric ozone depletion problem, and evaluated air toxic issues. To meet continuing state and federal mandates, SCAQMD and SCAG produced the 1994 AQMP. This document proposed attainment of all ambient air quality standards by the year 2010, except the state standards for O3 and PM10. This plan has been approved by the USEPA as meeting the goals of the 1990 CAA and is the federally-enforced air quality plan in the SCAB.

The most recent attainment plan for the SCAB is the 1997 AQMP, which was approved by the SCAQMD in November 1996. This plan (1) updates demonstration of attainment of the national/state CO standards and federal O3 standard by the years 2000 and 2010, respectively, (2) demonstrates attainment of federal PM10 standards by the year 2006, (3) includes a maintenance plan for NO2, and (4) satisfies the CCAA three-year submittal requirements. The 1997 AQMP has been approved by the CARB, but has yet to be approved by the USEPA.

3.1.2.7 SCAQMD Rules and Regulations

The SCAQMD has developed the SCAQMD Rules and Regulations to regulate stationary sources of air pollution in the SCAB (SCAQMD, 1998). The CARB reviews many stationary source permit applications in the SCAB to ensure that these rules and regulations are implemented. The proposed project would comply with all applicable SCAQMD rules and regulations. A summary of the more pertinent SCAQMD rules that would apply to the proposed action are summarized below:

- Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II. This rule exempts motor vehicles and certain types of equipment from permitting requirements. Since no stationary sources are proposed for the project, Permits to Construct (PTC) or Permits to Operate (PTO) would not be required.
- Rule 403 - Fugitive Dust. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, such that the dust remains visible beyond the emission source property line. A person conducting active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type. Large operations (in excess of 100 acres of disturbed surface area or any earth-moving operation that exceeds 10,000 cubic yards of earthmoving or throughput three times in a year) shall either implement control measures identified in the rule or obtain an approved fugitive dust emissions plans from the SCAQMD. Since the proposed construction activities would qualify as a large operation, the project construction manager would have to comply with these requirements.
- Rule 2202 - On-road Motor Vehicle Mitigation Options. As of January 1997, this rule applies to employers of more than 250 people. The purpose of the rule is to provide employers with options to reduce mobile source emissions generated from employee commuter vehicles. The emission reduction measures include one or more of the following: (1) scrapping of old vehicles, (2) a program to monitor vehicle exhaust by remote sensing, (3) clean on- or off-road vehicle strategies, (4) contribute to the Air Quality Investment Program, or (5) apply emission reduction credits from mobile or stationary sources. This rule will be rescinded on December 31, 1998 or earlier, provided that a replacement measure is implemented which produces an equivalent or greater level of emission reductions.

3.1.2.8 Climate and Meteorology

The climate of the project region is classified as Mediterranean, characterized by cool, dry summers and mild, wet winters. The major influence on the regional climate is the Eastern Pacific High, a strong persistent anticyclone, and the moderating effects of the cool Pacific Ocean. Seasonal variations in the position and strength of the High are a key factor in the weather changes in the area.

The Eastern Pacific High attains its greatest strength and most northerly position during the summer, when it is centered west of Northern California. In this location, the High effectively shelters Southern California from the effects of polar storm systems. Large-scale atmospheric subsidence associated with the High produces an elevated temperature inversion along the West Coast. The base of this subsidence inversion is generally from 300 to 800 meters (1,000 to 2,500 feet) above mean sea level during the summer. Vertical mixing is often limited to the base of the inversion, and air pollutants are trapped in the lower atmosphere. The mountain ranges that rim the Los Angeles Basin constrain the horizontal movement of air and also inhibit the dispersion of air pollutants out of the region. These two factors, combined with the air pollution sources of over 14 million people, are responsible for the high pollutant conditions that can occur in the SCAB.

Marine air trapped below the base of the subsidence inversion is often condensed into fog and stratus clouds by the cool Pacific Ocean. This is a typical weather condition in the San Pedro Bay region during the warmer months of the year. Stratus clouds usually form offshore and move into the coastal plains and valleys during the evening hours. When the land heats up the following morning, the clouds burn off to the immediate coastline, only to reform again the following evening.

As winter approaches, the Eastern Pacific High begins to weaken and shift to the south, allowing polar storm systems to pass through the region. These storms produce periods of cloudiness, strong shifting winds, and precipitation. The number of days with precipitation varies substantially from year to year, producing a wide range of annual precipitation totals. Storm conditions are usually followed by periods of clear skies, cool temperatures, and gusty southwest to northwest winds as these systems move eastward. The annual precipitation for the Long Beach Airport, approximately nine miles northeast of the project site, has ranged from 3.0 to 27.7 inches from 1958 through 1997, with an average of 12.4 inches (NOAA, 1998). About 94 percent of the annual rainfall occurs during the months of November through April, with a monthly average maximum of 2.9 inches in February. This wet-dry seasonal pattern is characteristic of coastal California locations. Generally, precipitation is lower along the coastline and increases inland towards higher terrain.

Although most of the precipitation in the region is produced by winter storms from the North Pacific, summer rainfall from tropical sources can also occur. This precipitation usually originates from continental Mexico or tropical storms off the West Coast of Mexico. However, precipitation from tropical air masses is infrequent and usually negligible.

The average high and low temperatures at the Long Beach Airport in August are 84.3°F and 65.0°F, respectively. January average high and low temperatures are 66.8°F and 45.4°F. Extreme high and low temperatures recorded from 1951 through 1993 were 111.0°F and 25.0°F, respectively (NOAA, 1998). Temperatures in the San Pedro Bay are generally less extreme than inland regions, due to the moderating effect of the ocean.

The proximity of the Eastern Pacific High and a thermal low pressure system in the desert interior to the east produces an onshore air flow from the southwest in the region for most of the year. Sea breezes transport air pollutants away from the coast toward the interior regions in the afternoon hours most of the year. Easterly winds are attributed to nocturnal and wintertime land breezes. These land breezes may extend many miles offshore during the colder months of the year until daytime heating reverses the flow back onshore. High pollutant impacts can occur during these conditions when land breezes transport onshore emissions over the ocean, then return them with the onset of the sea breeze to recombine with local emissions.

During the fall and winter months, the Eastern Pacific High can combine with high pressure over the continent to produce light winds and extended inversion conditions in the region. These stagnant atmospheric conditions often result in adverse pollutant concentrations in the SCAB. Excessive build-up of high pressure in the Great Basin region can produce a Santa Ana condition, characterized by warm, dry, northeast winds in the SCAB and offshore regions. Santa Ana winds often ventilate the SCAB and prevent the build-up of air pollutants.

3.1.2.9 Baseline Air Quality

The USEPA has designated all areas of the United States as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. A nonattainment designation means that a primary NAAQS has been exceeded more than three discontinuous times in three years in a given area. The CARB also designates areas of the state as either in attainment or nonattainment of the CAAQS. An area is in nonattainment if a CAAQS has been exceeded more than once in three years. In regard to the NAAQS, the SCAB is presently in extreme nonattainment for O3, serious nonattainment for CO and PM10, and nonattainment for NO2. However, since the SCAB had not exceeded the NO2 standard since

1991, the SCAQMD has requested to USEPA to redesignate the region as in attainment for NO2. In regard to the CAAQS, the SCAB is presently in extreme nonattainment for O3, severe nonattainment for NO2 and CO, and nonattainment for PM10. The SCAB is in attainment for both the NAAQS and CAAQS for SO2.

Generally, concentrations of photochemical smog, or O3, are highest during the summer months and coincide with the season of maximum solar insolation. Inert pollutant concentrations tend to be the greatest during the winter months and are a product of light wind conditions and surface-based temperature inversions that are frequent this time of year.

Air quality within the SCAB has improved since air quality monitoring began in 1976. This improvement is mainly due to lower polluting on-road motor vehicles and the implementation of emission reduction strategies by the SCAQMD. This trend towards cleaner air has occurred in spite of continued population growth. While 208 days exceeded the national O3 standard in 1977, only 90 days exceeded the standard in 1996, which is the lowest on record. However, the number of exceedances in 1996 is still greater than for any other region in the nation.

3.1.2.10 South Coast Air Basin Emissions

The total air emissions that occurred in the SCAB during 1993 are displayed in Table 3.1-2 (SCAQMD, 1996). The SCAB emissions inventory is periodically updated for planning purposes to (1) forecast future emissions inventories, (2) analyze emission control measures, and (3) use as input data for regional air quality modeling. The 1993 inventory represents the baseline emissions year used for the 1997 AQMP. Table 3.1-2 shows that the largest contributors to air pollutants in the SCAB are mobile sources.

Table 3.1-2 1993 Air Pollutant Emissions Inventory for the South Coast Air Basin (Tons/Day)

Source Category	VOC	CO	NOx	SOx	PM10
Stationary Sources					
Fuel Combustion	11	65	145	18	11
Waste Burning	1	18	3	1	2
Solvent Use	334	0	0	0	1
Petroleum Process, Storage, & Transfer	58	5	1	2	1
Industrial Processes	25	1	6	2	13
Miscellaneous Processes	33	10	1	0	359
Total Stationary Sources	**462**	**99**	**156**	**23**	**387**
Mobile Sources					
On-road Vehicles	742	7,293	870	25	27
Off-road Vehicles	112	1,265	223	26	16
Ships and Commercial Boats	3	5	41	25	3
Total Mobile Sources	**857**	**8,563**	**1,134**	**76**	**46**
SCAB Total sources	**1,319**	**8,662**	**1,290**	**99**	**433**

Source: SCAQMD 1996a.

On-road motor vehicles account for approximately 55 percent of the VOC, 67 percent of the NOx, and 81 percent of the CO emitted in the SCAB (CARB, 1984).

3.1.2.11 Sensitive Receptors

The impact of air emissions to sensitive members of the population is a special concern. Sensitive receptor groups include children, elderly, and the acutely and chronically ill. The locations of these groups include residences, schools, playgrounds, day care centers, and hospitals. The nearest sensitive receptors to the Pier 400 terminal would be residents at the Federal Correction Institution on Reservation Point, about 0.5 mile to the west.

3.1.3 IMPACT SIGNIFICANCE CRITERIA

Criteria to determine the significance of air quality impacts are based on federal, state, and local air pollution standards and regulations. Impacts are considered to be significant if project emissions (1) increase ambient pollutant levels from below to above the NAAQS and CAAQS, (2) contribute measurably to an existing or projected air quality violation, (3) are inconsistent with measures contained in the 1997 AQMP (inconsistent projects include those exceeding land use and population forecasts adopted by SCAG and used in the AQMP emission forecasts), or (4) exceed the thresholds the SCAQMD recommends (see Table 3.1-3) for the determination of significance for CEQA purposes (SCAQMD, 1993).

Table 3.1-3 Air Quality Impact Significance Thresholds

Activity	CO	NOx	SOx	PM10	ROC
Operation (lbs/day)	550	55	150	150	55
Construct. (daily)(lbs/day)	550	100	150	150	75
Construct. (tons/quarter)	24.75	2.5	6.75	6.75	2.5

The SCAQMD generally accepts use of average emission levels for a source with day-to-day variation such as shipping activities. The LAHD uses a daily basis for assessing impact significance. Daily differences between existing and future conditions for port operational activities, in addition to those for the emissions-heavy dredging/construction period, were therefore used to assess impact significance.

3.1.4 IMPACTS OF THE PROPOSED PROJECT

Emissions from project construction and operational activities were calculated using the most current emission factors, then compared to the SCAQMD emission thresholds to determine their significance. Mitigation measures were applied to project activities that would exceed SCAQMD emission thresholds, then evaluated as to their effectiveness to reduce project impacts.

3.1.4.1 Construction Impacts

Phase 1A

Construction activities would involve the use of numerous heavy-duty equipment and trucks and would produce combustive and fugitive dust emissions. Equipment usage and scheduling needed to calculate emissions for these project activities were obtained from LAHD staff (personal communications with Shaun Shahrestani and Bill Tilley) and from the Pier 300 Container Terminal EIR (LAHD, 1993a). Emission factors used to derive source emission rates were obtained from Compilation of Air Pollution Emission Factors, AP-42, Volumes I and II (USEPA 1985 and 1992), the CEQA Air Quality Handbook (SCAQMD, 1993), the EMFAC7G mobile source emission factor model (CARB, 1997), and special studies on vessel emissions (AEC, 1996). Appendix A of the special study (SAIC, 1998a) includes data and assumptions used to generate project construction emissions.

Table 3.1-4 presents emission estimates for each Phase 1A construction activity. To estimate peak daily emissions for comparison to the SCAQMD significance thresholds, it was assumed that emissions from all equipment for Phase 1A construction activities would occur every day of construction. However, this overestimates the expected peak-day emissions, as all equipment under each activity would not operate during the same day. Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in identical peak daily and mitigated peak daily emissions.

Table 3.1-4 Daily Emissions from Construction of the Pier 400 Project - Phases 1A and 2A

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1A					
Transportation Corridor - Mainline Rail/Bridge (1)	59	372	639	38	115
Transportation Corridor - Vehicular Access/Bridge (1)	59	377	645	38	211
Backland Improvements	45	343	450	12	175
Wharf Construction	34	148	402	32	168
Rail Intermodal Yard	30	132	290	7	164
Rail Storage Yard - Fully Developed	30	132	290	7	164
Phase 1A Peak Daily Emissions (2)	**257***	**1,505***	**2,716***	**134**	**997***
Phase 1A Mitigated Peak Daily Emissions	**220***	**1,505***	**2,336***	**134**	**997***
Phase 2A					
Backland Improvements	79	579	758	25	109
Wharf Construction	36	152	418	33	170
Rail Intermodal Yard	36	175	344	10	112
Phase 2A Peak Daily Emissions (2)	**150***	**906***	**1,520***	**68**	**391***
Phase 2A Mitigated Peak Daily Emissions	**134***	**906***	**1,359***	**68**	**391***
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**

***** = Significant Impact

Notes: (1) Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in identical peak daily and mitigated peak daily emissions.

(2) Since all construction activities would occur every day during construction, emissions from all activities were assumed to occur during a peak day. However, this is recognized as an overestimate, as all equipment under each activity would not operate simultaneously every day.

The data in Table 3.1-4 show that construction emissions during a peak day of activity would exceed the SCAQMD emission thresholds for ROG, CO, NOx, and PM10. These emissions would therefore be considered significant. Construction of the transportation corridor vehicular access would produce the highest daily emissions of any activity. Fugitive dust associated with earthmoving activities would produce the overwhelming majority of PM10 emissions. The emission estimates assumed a control efficiency of 75 percent for fugitive dust, to incorporate compliance with SCAQMD Rule 403. Prior to construction, a contractor would be required to obtain a SCAQMD-approved Fugitive Dust Emissions Control Plan which demonstrates adequate fugitive dust control measures. Construction emissions would be temporary in nature and would stop at the end of construction activities.

Phase 2A

Table 3.1-4 presents emission estimates for each Phase 2A construction activity. It was assumed that the three construction components would occur during the same day. However, this overestimates the expected peak day emissions, as all equipment under each activity would not operate during the same day. The data in Table 3.1-4 show that Phase 2A construction emissions during a peak day of activity would exceed the SCAQMD emission thresholds for ROG, CO, NOx, and PM10. Although less than Phase 1A emission, Phase 2A construction emissions would still be in excess of the daily significance criteria. Construction of the backlands would produce the highest daily emissions of any activity. Fugitive dust associated with earthmoving activities would produce the overwhelming majority of PM10 emissions. Construction emissions would be temporary in nature and would stop at the end of construction activities, a period of approximately 18 months.

3.1.4.2 Operational Impacts

Phase 1A

Operational activities associated with the Phase 1A project that would produce emissions include the following:

- Ship operations, including:
  - container ships cruising within the boundaries of the SCAQMD waters (an average of 63 nautical miles per round trip),
  - container ships maneuvering within the harbor area (2.3 hours per ship visit),
  - tug boat assistance during ship maneuvering,
  - container ships hotelling while at berth, and
- Container terminal yard equipment
- Railyard equipment
- Container transport by truck
- Container transport by train
- Employee vehicles

Information on proposed operational emission sources and cargo throughput were obtained from LAHD staff (personal communications with Larry Cottrill and Doug Thiessen), recent air quality analyses performed for new container terminals in the POLA (LAHD, 1993a and 1997), and from current container terminal operators at the LAHD. Data associated with project on-road traffic were obtained from the Pier 400 special study for traffic. Emission factors used to derive source emission rates were obtained from Compilation of Air Pollution Emission Factors, AP-42, Volume II (USEPA 1985), the EMFAC7G model (CARB, 1997), and special studies on off-road mobile sources (Booz, Allen, and Hamilton, Inc., 1992) and vessels (TRC Environmental Consultants, 1989 and AEC, 1996). Appendix A of the special study (SAIC, 1998a) includes data and assumptions used to generate project operational emissions.

The number of ship visits associated with a given throughput of cargo is one of the most important parameters needed to estimate emissions from a container terminal. The following factors were considered for the estimation of the number of ships that would annually call at the Phase 1A facility: (1) the Phase 1A container yard storage capacity; (2) the fleet mix and throughput of container vessels that presently use the POLA; (3) the fleet mix and throughput of container vessels expected in future years (a trend toward larger vessels); and (4) the capacity of the Pier 400 wharf cranes and resulting service time (the amount of time required to unload and load a vessel). From the consideration of these factors, 277 ships, ranging in size from C-11s to small coastal trade vessels, would be expected to annually call at the Phase 1A facility. The following are additional assumptions used to estimate operational emissions:

1. Ship loading and unloading operations would occur during two eight-hour shifts per day when a ship is at berth.
2. Ship hotelling durations were calculated by multiplying the vessel service time by 24 hours/16 hours. Vessel service time was estimated based on vessel cargo capacity and average cargo handling capacities for this type of facility. Vessel service time is the time it takes to unload a vessel assuming non-stop unloading. Unloading operations typically occur for two eight-hour shifts per day. Hotelling emissions occur 24 hours per day. Hotelling emissions for each container vessel were based on the average production of 700 kilowatt-hours of electricity by onboard diesel-powered generators, times the hours of hotelling for each vessel.
3. Terminal yard equipment would operate for the duration of service time per vessel, or 16 hours per day. The amount of equipment associated with each ship visit would include two rubber-tired gantry cranes, two top picks, and 24 hostlers, all diesel-powered.
4. The ground transport of containers in and out of the Phase 1A facility would be evenly split between trains and trucks. A maximum of two unit trains per day would transport cargo during Phase 1A. Each unit train round trip would handle 548 containers (932 TEUs): 296 containers (504 TEUs) imports passing in through the port and 252 containers (428 TEUs) exports/empty containers passing out through the port. As a result, the Pier 400 rail facility would accommodate all of the project intermodal cargo.
5. Railyard equipment would operate for 15 hours per unit train visit. The amount of equipment associated with each train visit would include three rubber-tired gantry cranes, two top picks, and 12 hostlers (all diesel-powered).
6. Train emissions were based on a 20-mile travel distance to and from Pier 400 and the junction of the Southern Pacific and Union Pacific rail lines, approximately 6 miles east of the Los Angeles railyards. All project rail cargo would pass through this point and exit the Los Angeles Basin. Trains would idle/maneuver for one hour within the Pier 400 railyard before leaving the facility. Trains would travel at an average speed of 20 mph in the region. Four locomotives would power each unit train. A switchyard locomotive would also operate for five hours per train visit to facilitate railyard operations.
7. The average trip distance for containers transported by truck would be 12 miles. Each truck trip would be associated with 20 minutes of idle mode.
8. Employee commutes would be an average distance of 15 miles one-way. The number of employees per vehicle would be 1.1.
9. Two tug boats would assist the berthing of each container ship for a total of 2.3 hours per ship visit, equal to the maneuvering time for each ship visit.

Table 3.1-5 presents an estimate of the annual average daily operational emissions that would occur for Phase 1A source categories. These data show that the main contributors to emissions would be container ships, although the majority of these emissions would occur several miles offshore during cruising activities. Trains, trucks, and rail and terminal yard equipment also would produce a substantial amount of the total daily emissions. Since the operation of Phase 1A would exceed all of the daily SCAQMD thresholds, these emissions would be significant. However, with an intermodal railyard at the Pier 400 facility, the project represents a less polluting design compared to older facilities without a dock-side railyard. This design would eliminate the need to truck project intermodal cargo to offsite railyards and would produce less truck vehicle miles traveled (VMT). Deepening of the shipping channel as part of the Deep Draft Project and development of the Pier 400 facility would also enable larger container vessels to access the POLA, thereby reducing the number of ship visits needed to handle a given cargo throughput. Removal of these ship visits in future years would eliminate their cruising and maneuvering emissions from the region. If the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this cargo could eventually overload the future capacity of the POLA. If this were the case, ships would spend extra time waiting outside the breakwater until a terminal became available to handle their cargo. This would increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action.

Table 3.1-5 Pier 400 Container Terminal Proposed Project Daily Operational Emissions

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1A					
Ships - Cruising	49	155	1,814	1,019	154
Ships - Maneuvering	14	45	506	284	43
Ships - Hotelling	99	70	566	271	20
Tugs	2	7	49	9	1
Terminal Yard Equipment	95	295	1,052	28	59
Railyard Equipment	53	160	612	16	32
Trucks	75	613	732	30	37
Trains	27	72	699	37	17
Employee Vehicles	5	115	23	1	0
Subtotal	**418***	**1,532***	**6,054***	**1,695***	**365***
Phase 2A					
Ships - Cruising	55	174	2,031	1,141	173
Ships - Maneuvering	16	50	567	318	48
Ships - Hotelling	111	78	635	304	23
Tugs	2	7	55	10	1
Terminal Yard Equipment	106	330	1,179	31	66
Railyards Equipment	59	180	686	18	36
Trucks	84	683	816	34	41
Trains	31	81	784	41	19
Employee Vehicles	5	115	23	1	0
Subtotal	**468***	**1,699***	**6,775***	**1,898***	**408***
Phases 1A and 2A Combined					
Ships - Cruising	103	329	3,846	2,160	327
Ships - Maneuvering	30	95	1,073	603	91
Ships - Hotelling	209	148	1,200	575	43
Tugs	5	14	103	19	2
Terminal Yard Equipment	201	625	2,231	59	125
Railyard Equipment	112	340	1,298	34	69
Trucks	159	1,296	1,548	64	81
Trains	58	154	1,483	78	37
Employee Vehicles	9	230	47	3	0
Subtotal	**886***	**3,231***	**12,830***	**3,593***	**773***
SCAQMD Daily Significant Thresholds	**55**	**550**	**55**	**150**	**150**

***** = Significant Impact

Project truck and commuter traffic would increase CO concentrations along local roadways and intersections. The peak one-hour truck and commuter vehicle trips generated by the Phase 1A project would be 105 and 170, respectively. Additionally, the daily trips generated by the Phase 1A project would be 600 commuter vehicles and 1,750 trucks. The Pier 400 traffic analysis determined that project traffic would significantly increase congestion at the Navy Way/Terminal Way, Seaside Avenue/Navy Way, and Ocean Boulevard/Terminal Island Freeway intersections. The potential would exist for project traffic to contribute to an exceedance of a CO ambient air quality standard at the later two intersections, due to the volume of future baseline traffic. However, independent implementation of the following intersection improvements would ensure that future traffic congestion would not increase to the point that would cause a CO standard exceedance, as identified in the project traffic analysis:

1. Construction of a westbound to southbound ramp from Seaside Avenue to Terminal Way and the ramp connection and grade separation from Navy Way to Pier 400.
2. Construction of the approved diamond interchange at the Ocean Boulevard/Terminal Island Freeway intersection by Caltrans and the Port of Long Beach.

With the implementation of these improvements, localized CO impacts from project traffic would be considered insignificant.

Train trips associated with Phase 1A operations would cause vehicle traffic delays at grade crossings within the project area. However, a maximum of two project train trips per day would not be expected to increase traffic delays at these locations for more than a short period of time. Therefore, the increase in CO impacts that would occur from project train trips at these locations would be insignificant.

Operational emissions would be identical for both railway alignment alternatives.

Phase 2A

Operational activities associated with the Phase 2A project would be the same as those identified for Phase 1A. The number of annual ship visits associated with Phase 2A operations would be 310, or a total of 589 ship visits for the combined Phases 1A and 2A project. A maximum of two unit trains per day would also transport cargo during Phase 2A operations, or a maximum of four units trains per day for the combined Phase 1A and 2A projects.

Table 3.1-5 presents the daily operational emissions estimated for Phase 2A source categories. These data show that operational emissions for Phase 2A would be slightly greater than for Phase 1A, due to a larger cargo throughput. Since operation of Phase 2A and the combined Phases 1A and 2A project would exceed all of the daily SCAQMD thresholds, these emissions would be significant. However, as stated for Phase 1A operations, the project represents a less polluting design compared to a facility without a dock-side railyard, as it would produce less truck VMT. Additionally, if the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this could increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action.

Project truck and commuter traffic would increase CO concentrations along local roadways and intersections. The peak one-hour truck and commuter vehicle trips generated by the combined Phases 1A and 2A project would be 220 and 340, respectively. Additionally, the daily trips generated by both phases of the project would be 1,200 commuter vehicles and 3,700 trucks. The Pier 400 traffic analysis for the combined Phases 1A and 2A project determined that project traffic, by definition, would significantly impact intersections at Seaside Avenue/Navy Way and at Navy Way/Terminal Way. However, these intersections are predicted to operate at acceptable levels of service (LOS D or better), due to the implementation of traffic flow improvements. As a result, Phases 1A and 2A project traffic would not be expected to cause a CO standard exceedance at these locations. However, project traffic would significantly increase congestion on Interstate-710 southbound at Willow Street. Completion of the Alameda Corridor would help to reduce future traffic congestion on Interstate-710. Localized CO impacts from the combined Phases 1A and 2A project traffic would therefore be insignificant, with the possible exception of impacts on Interstate-710.

Train trips associated with the combined Phase 1A and 2A operations would cause vehicle traffic delays at grade crossings. However, a maximum of four project train trips per day would not be expected to increase traffic delays at these locations for more than a short period of time. Therefore, the increase in CO impacts that would occur from project train trips at these locations would be insignificant.

Additionally, completion of the Alameda Corridor Project would eliminate all at-grade train crossings affected by project trains.

Residents at the Federal Correctional Institution (FCI) on Reservation Point, about 0.5 mile to the west of the Pier 400 terminal, would experience an increase in air pollutant emissions as a result of the operation of project vessel and terminal sources. However, the impact of Phases 1A and 2A operational emissions to these sensitive receptors would be insignificant, since (1) the distance between the FCI and the Pier 400 terminal would be enough to allow for adequate dispersion of project emissions, (2) project emission sources would be intermittent, and (3) the prevailing south to southwest sea breezes would minimize the impact of project emissions at this location. Project impacts to other sensitive receptors in the region would be expected to be insignificant.

Operational emissions would be identical for both railway alignment alternatives.

3.1.5 IMPACTS OF THE ALTERNATIVE DESIGN

Emissions from construction and operational activities associated with Alternative B were calculated using the most current emission factors, then compared to the SCAQMD emission thresholds to determine their significance. Mitigation measures were applied to project activities that would exceed SCAQMD emission thresholds, then evaluated as to their effectiveness to reduce project impacts.

3.1.5.1 Construction Impacts

Phase 1B

Construction activities would involve the use of numerous heavy-duty equipment and trucks and would produce combustive and fugitive dust emissions. Equipment usage and scheduling needed to calculate emissions for these project activities were obtained from LAHD staff (personal communications with Shaun Shahrestani and Bill Tilley) and from the Pier 300 Container Terminal EIR (LAHD 1993a). Emission factors used to derive source emission rates were obtained from Compilation of Air Pollution Emission Factors, AP-42, Volumes I and II (USEPA 1985 and 1992), the CEQA Air Quality Handbook (SCAQMD 1993), the EMFAC7G mobile source emission factor model (CARB, 1997), and special studies on vessel emissions (AEC 1996). Appendix A includes data and assumptions used to generate project construction emissions.

Table 3.1-6 presents emission estimates for each Phase 1B construction activity. To estimate peak daily emissions for comparison to the SCAQMD significance thresholds, it was assumed that emissions from all equipment associated with each construction activity would simultaneously occur. However, this overestimates the expected peak-day emissions, as all equipment under each activity would not operate during the same day. Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in identical peak daily and mitigated peak daily emissions.

The data in Table 3.1-6 show that construction emissions during a peak day of activity for Phase 1B would exceed all of the daily SCAQMD emission thresholds. These emissions would therefore be considered significant. Construction of the transportation corridor vehicular access would produce the highest daily emissions of any activity. Fugitive dust associated with earthmoving activities would produce the overwhelming majority of PM10 emissions. The emission estimates assumed a control efficiency of 75 percent for fugitive dust, to incorporate compliance with SCAQMD Rule 403. Prior to construction, a contractor would be required to obtain a SCAQMD-approved Fugitive Dust Emissions Control Plan, which demonstrates adequate fugitive dust control measures. Construction emissions would be temporary in nature and would stop at the end of construction activities.

Table 3.1-6 Daily Emissions from Construction of the Pier 400 Project - Phases 1B and 2B

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1B					
Transportation Corridor - Mainline Rail/Bridge (1)	59	376	640	38	115
Transportation Corridor - Vehicular Access (1)	60	378	659	39	212
Backland Improvements	89	673	877	23	349
Wharf Construction	68	292	796	63	336
Rail Intermodal Yard	59	259	571	14	327
Rail Storage Yard - Fully Developed	30	130	286	7	163
Phase 1B Peak Daily Emissions (2)	**364***	**2,190***	**3,829***	**184***	**1,500***
Phase 1B Mitigated Peak Daily Emissions	**312***	**2,109***	**3,295***	**184***	**1,500***
Phase 2B					
Backland Improvements	49	371	486	14	94
Wharf Construction	36	150	414	33	169
Phase 2B Peak Daily Emissions (2)	**85***	**521**	**900***	**47**	**263***
Phase 2B Mitigated Peak Daily Emissions	**73**	**521**	**782***	**47**	**263***
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**

***** = Significant Impact

Notes: (1) Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in identical peak daily and mitigated peak daily emissions.

(2) Since all construction activities would occur every day during construction, emissions from all activities were assumed to occur during a peak day. However, this is recognized as an overestimate, as all equipment under each activity would not operate simultaneously every day.

Phase 2B

Table 3.1-6 presents emission estimates for each Phase 2B construction activity. It was assumed that the two construction components would occur during the same day. However, this overestimates the expected peak day emissions, as all equipment under each activity would not operate during the same day. The data in Table 3.1-6 show that Phase 2B construction emissions during a peak day would exceed the daily SCAQMD emission thresholds for ROG, NOx, and PM10. Mitigated construction emissions during a peak day would not exceed the daily SCAQMD emission thresholds for ROG. Construction emissions from Phase 2B would be less than emissions associated with the construction of Phase 1B. Fugitive dust associated with earthmoving activities would produce the overwhelming majority of PM10 emissions. Construction emissions would be temporary in nature and would stop at the end of construction activities, a period of approximately 18 months.

3.1.5.2 Operational Impacts

Phase 1B

Operational activities associated with the Phase 1B project that would produce emissions include the following:

- Ship operations, including:
  - container ships cruising within the boundaries of the SCAQMD waters (an average of 63 nautical miles per round trip),

- container ships maneuvering within the harbor area (2.3 hours per ship visit),
- tug boat assistance during ship maneuvering, and
- container ships hotelling while at berth

• Container terminal yard equipment
• Railyard equipment
• Container transport by truck
• Container transport by train
• Employee vehicles

Information on proposed operational emission sources and cargo throughput were obtained from LAHD staff (personal communications with Larry Cottrill and Doug Thiessen), recent air quality analyses performed for new container terminals in the POLA (LAHD, 1993 and 1997), and from current container terminal operators at the LAHD. Data associated with project on-road traffic were obtained from the Pier 400 special study for traffic. Emission factors used to derive source emission rates were obtained from Compilation of Air Pollution Emission Factors, AP-42, Volume II (USEPA, 1985), the EMFAC7G model (CARB, 1997), and special studies on off-road mobile sources (Booz, Allen, and Hamilton, Inc., 1992) and vessels (TRC Environmental Consultants 1989, and AEC, 1996). Appendix A includes data and assumptions used to generate Alternative B operational emissions.

The number of ship visits associated with a given throughput of cargo is one of the most important parameters needed to estimate emissions from a container terminal. The following factors were considered for the estimation of the number of ships that would annually call at the Phase 1B facility: (1) the Phase 1B container yard storage capacity; (2) the fleet mix and throughput of container vessels that presently use the POLA; (3) the fleet mix and throughput of container vessels expected in future years (a trend toward larger vessels); and (4) the capacity of the Pier 400 wharf cranes and resulting service time (the amount of time required to unload and load a vessel). From the consideration of these factors, 500 ships, ranging in size from C-11s to small coastal trade vessels, would be expected to annually call at the Phase 1B facility. The following are additional assumptions used to estimate operational emissions for Alternative B:

1. Ship loading and unloading operations would occur during two eight-hour shifts per day when a ship is at berth.
2. Ship hotelling durations were calculated by multiplying the vessel service time by 24 hours/16 hours. Vessel service time was estimated based on vessel cargo capacity and average cargo handling capacities for this type of facility. Vessel service time is the time it takes to unload a vessel assuming non-stop unloading. Unloading operations typically occur for two eight-hour shifts per day. Hotelling emissions occur 24 hours per day. Hotelling emissions for each container vessel were based on the average production of 700 kilowatt-hours of electricity by onboard diesel-powered generators, times the hours of hotelling for each vessel.
3. Terminal yard equipment would operate for the duration of service time per vessel, or for a maximum of 16 hours per day. The amount of equipment associated with each ship visit would include two rubber-tired gantry cranes, two top picks, and 24 hostlers, all diesel-powered.
4. The ground transport of containers in and out of the Phase 1B facility would be evenly split between trains and trucks. A maximum of four unit trains per day would transport cargo during Phase 1B. Each unit train round trip would handle 548 containers (932 TEUs): 296 (504 TEUs) as imports passing in through the port and 252 containers (428 TEUs) as exports passing out through the port. The Pier 400 rail facility would accommodate all of the project intermodal cargo.

5. Railyard equipment would operate for 15 hours per unit train visit. The amount of equipment associated with each train visit would include three rubber-tired gantry cranes, two top picks, and 12 hostlers (all diesel-powered).
6. Train emissions were based on a 20-mile travel distance to and from Pier 400 and the junction of the Southern Pacific and Union Pacific rail lines, approximately 6 miles east of the Los Angeles railyards. All project rail cargo would pass through this point and exit the Los Angeles Basin. Trains would idle/maneuver for one hour within the Pier 400 railyard before leaving the facility. Trains would travel at an average speed of 20 mph in the region. Four locomotives would power each unit train. A switchyard locomotive would also operate for five hours per train visit to facilitate railyard operations.
7. The average trip distance for containers transported by truck would be 12 miles. Each truck trip would be associated with 20 minutes of idle mode.
8. Employee commutes would be an average distance of 15 miles one-way. The number of employees per vehicle would be 1.1.
9. Two tug boats would assist the berthing of each container ship for a total of 2.3 hours per ship visit, equal to the maneuvering time for each ship visit.

Table 3.1-7 presents an estimate of the annual average daily emissions that would occur from Phase 1B operations. These data show that the main contributors to emissions would be container ships, although the majority of these emissions would occur several miles offshore during cruising activities. Trains, trucks, and rail and terminal yard equipment also would produce a substantial amount of the total daily emissions. Since the operation of Phase 1B would exceed all of the daily SCAQMD thresholds, these emissions would be significant. However, with an intermodal railyard at the Pier 400 facility, the project represents a less polluting design compared to older facilities without a dock-side railyard. This design would eliminate the need to truck project intermodal cargo to offsite railyards and would produce less truck vehicle miles traveled (VMT). Deepening of the shipping channel as part of the Deep Draft Project and development of the Pier 400 facility would also enable larger container vessels to access the POLA, thereby reducing the number of ship visits needed to handle a given cargo throughput. Removal of these ship visits in future years would eliminate their cruising and maneuvering emissions from the region. If the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this cargo could eventually overload the future capacity of the POLA. If this were the case, ships would spend extra time waiting outside the breakwater until a terminal became available to handle their cargo. This would increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action. The level of significance of Phase 1B operation impacts would be the same as those estimated for operation of a container terminal on Pier 400 for the Deep Draft Project.

Project truck and commuter traffic would increase CO concentrations along local roadways and intersections. The peak one-hour truck and commuter vehicle trips generated by the Phase 1B project would be 190 and 340, respectively. Additionally, the daily trips generated by Phase 1B would be 3,130 trucks and 1,200 commuter vehicles. The Pier 400 traffic analysis determined that project traffic would significantly increase congestion at the Navy Way/Terminal Way, Seaside Avenue/Navy Way, and Ocean Boulevard/Terminal Island Freeway intersections. The potential would exist for project traffic to contribute to an exceedance of a CO ambient air quality standard at the later two intersections, due to the volume of future baseline traffic. However, independent implementation of the following intersection improvements would ensure that future traffic congestion would not increase to the point that would cause a CO standard exceedance, as identified in the project traffic analysis:

1. Construction of a proposed Seaside Avenue connector project, with a westbound to southbound ramp from Seaside Avenue to Terminal Way and Pier 400 and a ramp connection and grade separation from Navy Way to Pier 400 (See Figure 1-3).

Table 3.1-7 Pier 400 Container Terminal Alternative Design Daily Operational Emissions

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1B					
Ships - Cruising	88	280	3,273	1,838	279
Ships - Maneuvering	26	81	914	513	78
Ships - Hotelling	177	125	1,015	486	37
Tugs	4	12	88	16	2
Terminal Yard Equipment	170	529	1,886	50	106
Railyard Equipment	95	289	1,103	29	58
Trucks	127	1,042	1,223	51	61
Trains	49	131	1,260	66	31
Employee Vehicles	9	216	44	2	0
Subtotal	**744***	**2,704***	**10,807***	**3,050***	**652***
Phase 2B					
Ships - Cruising	44	140	1,638	920	139
Ships - Maneuvering	13	41	457	257	39
Ships - Hotelling	89	63	511	245	18
Tugs	2	6	44	8	1
Terminal Yard Equipment	85	266	950	25	53
Railyards Equipment	45	138	527	14	28
Trucks	64	523	613	25	31
Trains	24	62	603	32	15
Employee Vehicles	4	108	22	1	0
Subtotal	**370***	**1,347***	**5,365***	**1,526***	**325***
Phases 1B and 2B Combined					
Ships - Cruising	132	420	4,911	2,758	418
Ships - Maneuvering	39	122	1,371	770	117
Ships - Hotelling	266	189	1,526	730	55
Tugs	6	18	132	24	3
Terminal Yard Equipment	255	795	2,836	75	159
Railyard Equipment	140	427	1,631	42	86
Trucks	191	1,565	1,836	76	92
Trains	73	193	1,863	78	46
Employee Vehicles	13	324	65	4	0
Subtotal	**1,114***	**4,051***	**16,172***	**4,576***	**997***
SCAQMD Daily Significant Thresholds	**55**	**550**	**55**	**150**	**150**

***** = Significant Impact

2. Construction of the approved diamond interchange at the Ocean Boulevard/Terminal Island Freeway intersection by Caltrans and the Port of Long Beach.

With the implementation of these improvements, localized CO impacts from Phase 1B traffic at roadway intersections would be considered insignificant.

Project traffic would also significantly increase congestion on Interstate-710 southbound at Willow Street. Although completion of the Alameda Corridor would help to reduce future traffic congestion on Interstate-710, Phase 1B traffic could contribute to significant CO impacts in proximity to this roadway.

Train trips associated with Phase 1B operations would cause vehicle traffic delays at grade crossings within the project area. However, a maximum of four project train trips per day would not be expected to increase traffic delays at these locations for more than a short period of time. Therefore, the increase in CO impacts that would occur from project train trips at these locations would be insignificant.

Operational emissions would be identical for both railway alignment alternatives.

Phase 2B

Operational activities associated with the Phase 2B project would be the same as those identified for Phase 1B. The number of annual ship visits associated with Phase 2B operations would be 250, or a total of 750 ship visits for the combined Phases 1B and 2B project. A maximum of two unit trains per day would also transport cargo during Phase 2B operations, or a maximum of six units trains per day for the combined Phase 1B and 2B projects.

Table 3.1-7 presents the daily operational emissions estimated for Phase 2B source categories. These data show that operational emissions for Phase 2B would be less than for Phase 1B, due to a smaller cargo throughput. Since operation of Phase 2B and the combined Phases 1B and 2B project would exceed all of the daily SCAQMD thresholds, these emissions would be significant. However, as stated for Phase 1B operations, the project represents a less polluting design compared to a facility without a dock-side railyard, as it would produce less truck VMT. Additionally, if the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this could increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action.

Project truck and commuter traffic would increase CO concentrations along local roadways and intersections. The peak one-hour truck and commuter vehicle trips generated by the combined Phases 1B and 2B project would be 285 and 510, respectively. Additionally, the daily trips generated by both phases of the project would be 4,700 trucks and 1,800 commuter vehicles. The Pier 400 traffic analysis for the combined Phases 1B and 2B project determined that project traffic, by definition, would significantly impact the Seaside Avenue/Navy Way, Navy Way/Terminal Way, and Alameda/Pacific Coast Highway intersections. However, these intersections are predicted to operate at acceptable levels of service (LOS D or better), due to the implementation of traffic flow improvements. Additionally, a grade separation proposed for the Alameda/Pacific Coast Highway intersection (as part of the Alameda Corridor Project) would eliminate significant project traffic impacts at this intersection in future years. As a result, Phases 1B and 2B traffic would not be expected to cause a CO standard exceedance at roadway intersections.

Project traffic would also significantly increase congestion on Interstate-710 southbound at Willow Street in the morning peak hour and in both directions on Interstate-710 at this interchange in the evening peak hour. Completion of the Alameda Corridor would help to reduce future traffic congestion on Interstate-710. Localized CO impacts from the combined Phases 1B and 2B project traffic at this location would therefore be potentially significant.

Train trips associated with the combined Phase 1B and 2B operations would cause vehicle traffic delays at grade crossings. However, a maximum of six project train trips per day would not be expected to increase traffic delays at these locations for more than a short period of time. Therefore, the increase in CO impacts that would occur from project train trips at these locations would be insignificant. Additionally, completion of the Alameda Corridor Project would eliminate all at-grade train crossings affected by project trains.

Residents at the Federal Correction Institution (FCI) on Reservation Point, about 0.5 mile to the west of the Pier 400 terminal, would experience an increase in air pollutant emissions as a result of the operation of project vessel and terminal sources. However, the impact of Phases 1B and 2B operational emissions to these sensitive receptors would be insignificant, since (1) the distance between the FCI and the Pier 400 terminal would be enough to allow for adequate dispersion of project emissions, (2) project emission sources would be intermittent, and (3) the prevailing south to southwest sea breezes would minimize the impact of project emissions at this location. Project impacts to other sensitive receptors in the region would be expected to be insignificant.

Operational emissions would be identical for both railway alignment alternatives.

3.1.6 IMPACTS OF THE GAP CLOSURE ALTERNATIVE

Filling the gap as opposed to bridging the gap will not change any other aspect of the terminal's design. The design of the remainder of the Pier 400 Transportation Corridor and the Pier 400 Backlands areas will not be affected by selection of this alternative. Consequently, the only impact assessment that would be effected by selecting this alternative would be construction impacts during Phase 1, that phase during which the actual bridge or constructed fill would be built. Discussion in this section will be limited to Phase 1 construction impacts only. Please refer back to previous sections for Phase 2 construction impacts (3.1.4.1 or 3.1.5.1) and all operational impacts (3.1.4.2 or 3.1.5.2).

Construction emissions would be slightly less for the filled-gap versus the bridged-gap for both design alternatives described herein. Revised construction emissions were calculated by deleting emissions associated with bridge construction. For each alternative we deleted all air emissions associated with bridge construction. Emissions associated with construction of the transportation corridor - vehicular access are unchanged on a daily basis. This latter assumption is a conservative estimator of emissions. Construction times for a continuous corridor are shorter than for a corridor with a bridged gap; bridge approaches and bridge structures no longer have to be constructed. Maintaining the previous estimates minus bridge construction emissions will slightly overestimate emissions, but the difference is felt to be inconsequential and not worth the effort to recalculate.

3.1.6.1 Proposed Project with Gap Closure

Proposed Project - Phase 1A

Table 3.1-8 presents revised emission estimates for each Phase 1A construction activity. The data in Table 3.1-8 show that construction emissions during a peak day of activity would exceed the SCAQMD emission thresholds for ROG, CO, NOx, and PM10 during Phase 1A. These emissions would therefore be considered significant. Construction of the transportation corridor vehicular access would produce the highest daily emissions of any activity. Fugitive dust associated with earthmoving activities would produce the overwhelming majority of PM10 emissions. The emission estimates assumed a control efficiency of 75 percent for fugitive dust, to incorporate compliance with SCAQMD Rule 403. Prior to construction, a contractor would be required to obtain a SCAQMD-approved Fugitive Dust Emissions Control Plan which demonstrates adequate fugitive dust control measures. Construction emissions would be temporary in nature and would stop at the end of construction activities.

3.1.6.1 Alternative Design with Gap Closure

Alternative Design - Phase 1B

Table 3.1-9 presents revised emission estimates for each Phase 1B construction activity. The data in Table 3.1-9 show that construction emissions during a peak day of activity for Phase 1B would exceed the SCAQMD emission thresholds for ROG, CO, NOx, and PM10. These emissions would therefore be considered significant. Construction of the transportation corridor vehicular access would produce the highest daily emissions of any activity. Fugitive dust associated with earthmoving activities would produce the overwhelming majority of PM10 emissions. The emission estimates assumed a control efficiency of 75 percent for fugitive dust, to incorporate compliance with SCAQMD Rule 403. Prior to construction, a contractor would be required to obtain a SCAQMD-approved Fugitive Dust Emissions Control Plan, which

Table 3.1-8 Daily Emissions from Construction of the Pier 400 Project - Phase 1A with Gap Closure Alternative

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1A					
Transportation Corridor - Mainline Rail (1)	49	336	471	12	109
Transportation Corridor - Vehicular Access (1)	50	340	477	12	206
Backland Improvements	45	343	450	12	175
Wharf Construction	34	148	402	32	168
Rail Intermodal Yard	30	132	290	7	164
Rail Storage Yard - Fully Developed	30	132	290	7	164
Phase 1A Peak Daily Emissions (2)	**238***	**1,431***	**2,380***	**82**	**886***
Phase 1A Mitigated Peak Daily Emissions	**201***	**1,431***	**2,000***	**82**	**886***
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**

***** = Significant Impact

Notes: (1) Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in identical peak daily and mitigated peak daily emissions.

(2) Since all construction activities would occur every day during construction, emissions from all activities were assumed to occur during a peak day. However, this is recognized as an overestimate, as all equipment under each activity would not operate simultaneously every day.

demonstrates adequate fugitive dust control measures. Construction emissions would be temporary in nature and would stop at the end of construction activities.

Table 3.1-9 Daily Emissions from Construction of the Pier 400 Project - Phase 1B with Gap Closure Alternative

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1B					
Transportation Corridor - Mainline Rail (1)	50	339	472	12	108
Transportation Corridor - Vehicular Access (1)	51	342	491	13	206
Backland Improvements	89	673	877	23	349
Wharf Construction	68	292	796	63	336
Rail Intermodal Yard	59	259	571	14	327
Rail Storage Yard - Fully Developed	30	130	286	7	163
Phase 1B Peak Daily Emissions (2)	**347***	**2,035***	**3,493***	**132**	**1,489***
Phase 1B Mitigated Peak Daily Emissions	**295***	**1,954***	**2,959***	**132**	**1,489***
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**

***** = Significant Impact

Notes: (1) Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in identical peak daily and mitigated peak daily emissions.

(2) Since all construction activities would occur every day during construction, emissions from all activities were assumed to occur during a peak day. However, this is recognized as an overestimate, as all equipment under each activity would not operate simultaneously every day.

3.1.7 MITIGATION MEASURES

3.1.7.1 Proposed Project

Construction

Since construction of the Phase 1A project would produce significant ROG, CO, NOx, and PM10 emissions, mitigation measures were analyzed to determine their effectiveness in reducing these emissions to insignificance. The most feasible measures to reduce project construction emissions include the following: (1) use of CARB reformulated diesel fuel in off-road construction equipment to reduce ROG emissions by 16 percent and (2) use of two degree injection timing retard on diesel-powered equipment to reduce NOx emissions by 15 percent (although this control technique increases fuel usage and it is not applicable to all diesel engines). Review of Table 3.1-4 shows that the proposed mitigation measures would be insufficient to reduce these emissions to insignificance. Although further injection timing retard on diesel-powered equipment would produce additional NOx emission reductions, this technique would cause excessive fuel penalties. The mitigation measures mentioned above include those proposed for construction of a container terminal on Pier 400 for the Deep Draft Project (LAHD and USACE, 1992).

The following measures would also minimize combustion emissions from construction activities:

1. Properly tune and maintain all construction equipment.
2. Encourage ridesharing and mass transit use among construction personnel.
3. Discontinue construction activities during any Stage II smog alerts in the Long Beach Source Receptor Area.
4. Encourage contractors to investigate use of low-NOx engines, alternative fuels, electrification, catalytic converters, particulate traps, and other advanced technology, whenever feasible.
5. Encourage the use of CARB reformulated diesel fuel in off-road equipment.

The following measures would also minimize PM10 emissions associated with fugitive dust from construction activities:

1. Minimize traffic speeds on all unpaved roads.
2. Suspend grading and demolition activities when wind speeds (as instantaneous gusts) exceed 25 mph.

Implementation of Phase 1A mitigation measures would reduce Phase 2A emissions of ROG, CO, NOx, and PM10 during construction, but not to a level of insignificance.

Operation

Since operation of the combined Phase 1A and 2A project would exceed the SCAQMD emission thresholds, mitigation measures were analyzed to determine their effectiveness in reducing these emissions to insignificance. The most feasible measures to reduce project emissions would apply to the diesel- and gasoline-powered terminal and railyard equipment. These measures would include (1) use of two degree injection timing retard on all diesel-powered equipment to reduce NOx emissions by 15 percent; (2) use of clean fuels, such as liquid propane gas (LPG); and (3) electrification of equipment. However, Table 3.1-7 shows that with the elimination of terminal and railyard equipment emissions by electrification, Phase 1A or 2A emissions would still be significant for all pollutants.

Control technologies are available that could substantially reduce emissions from oceanic vessels. These strategies include engine modifications, exhaust treatment, and fuel modifications. For example, use of low-sulfur diesel fuel in container ships during hotelling activities would reduce SOx emissions from these sources. However, implementation of these measures often requires a higher initial capital cost, higher maintenance cost, and increased fuel consumption (AEC, 1996). Furthermore, the LAHD lacks jurisdictional authority over these vessels and implementation of these measures could create an unfair trade advantage if part of the worldwide vessel fleet chooses not to participate. Implementation of these measures would therefore have to be mandated at the federal or international level, rather than by state or local authorities.

In September 1997, the International Maritime Organization (IMO) adopted NOx emission limitations that will apply to new oceanic vessels with diesel engines larger than 175 Hp. These standards take effect in the year 2000. The USEPA is in the process of developing national emission limitation standards for diesel-powered marine engines larger than 50 Hp and manufactured in the U.S. These standards (1) could apply to as many as three marine vessel engine types and (2) could range from the IMO NOx standards to standards for all criteria pollutants, including NOx standards more stringent than those developed by the IMO (USEPA, 1998). The USEPA emission standards could take effect as early as the year 2000. Implementation of the IMO/USEPA standards will help to reduce emissions from ocean going vessels in the project region in future years. Control measure M13 in the 1994 and 1997 AQMP also contains techniques to reduce the impact of marine vessel emissions in the project region. These include (1) a reduction in cargo vessel speeds within SCAB waters to reduce emissions, (2) relocation of the shipping lanes farther offshore to reduce onshore impacts from cargo vessel emissions, and (3) adoption of the IMO/USEPA vessel emission standards. An atmospheric dispersion study was performed in 1997 to evaluate the effects of relocating the shipping lanes farther offshore the SCAB. The results of this study will be released by 1999.

Emissions from heavy-duty trucks would mainly be reduced by measures that modify operations, such as reducing idling time and trip reduction methods. The existing USEPA and CARB heavy-duty vehicle emission standards that apply to new vehicles will reduce basin-wide emissions as these vehicles replace the existing, more polluting vehicle fleet. Additionally, the revised USEPA heavy-duty vehicle emission standards of December 1997 will reduce emissions of non-methane hydrocarbons (NMHCs) (essentially ROGs) and NOx by over 50 percent from the 1998 standards. These standards will apply to new vehicle models beginning in the year 2004 and will further reduce NOx, NMHC, and PM10 emissions within the SCAB.

In summary, implementation of the above mentioned regulatory measures would reduce emissions from project operational sources to less than those identified in Table 3.1-5 in future years. However, Phase 1A or 2A emissions would still be expected to exceed the SCAQMD emission thresholds and would remain significant for all pollutants. Implementation of the following measures are suggested to further reduce emissions from project operational sources:

1. When feasible, operate Port facilities 24 hours per day to shift operational and cargo transport activities away from peak traffic hours, thereby increasing the rate of cargo transport;
2. To the extent feasible, have ship operators use the cleanest fuels available for use in vessels;
3. Investigate the feasibility of using clean fuels and electric power on dock-side equipment. Use of these technologies should be based on their emissions reduction potential and financial competitiveness;
4. Configure parking to minimize traffic interference;
5. Implement injection engine-timing retard on all diesel-powered equipment, including vessels, where feasible;
6. To minimize idling emissions from container trucks, encourage tenants to design terminal facilities and implement measures to use the internet web site "Dispatch System", created by the Intermodal Committee (netsite at http//www.laintermodal.com). This system provides subscribers, such as terminal and truck operators, (1) information about cargo conditions at Port

terminals and (2) a bulletin board system for truck operators to communicate with terminals and each other;

The Deep Draft EIS/EIR included the above measures one through four to mitigate emissions from the operation of a container terminal on Pier 400 (LAHD and USACE, 1992).

If the Pier 400 container terminals employ 250 or more people, the facility would be subject to the SCAQMD Rule 2202 requirement of meeting annual emission reduction targets related to commuter vehicle emissions.

3.1.7.2 Alternative Design

Construction

Since construction of the Phase 1B project would produce significant ROG, CO, NOx, SO2, and PM10 emissions, mitigation measures were analyzed to determine their effectiveness in reducing these emissions to insignificance. The most feasible measures to reduce project construction emissions include the following: (1) use of CARB reformulated diesel fuel in off-road construction equipment to reduce ROG emissions by 16 percent and (2) use of two degree injection timing retard on diesel-powered equipment to reduce NOx emissions by 15 percent (although this control technique increases fuel usage and it is not applicable to all diesel engines). Review of Table 3.1-6 shows that the proposed mitigation measures would only be able to reduce ROG emissions from Phase 2B construction to insignificance. Although further injection timing retard on diesel-powered equipment would produce additional NOx emission reductions, this technique would cause excessive fuel penalties. The mitigation measures mentioned above include those proposed for construction of a container terminal on Pier 400 for the Deep Draft Project (LAHD and USACE 1992).

The following measures would also minimize combustion emissions from construction activities:

1. Properly tune and maintain all construction equipment.
2. Encourage ridesharing and mass transit use among construction personnel.
3. Discontinue construction activities during any Stage II smog alerts in the Long Beach Source Receptor Area.
4. Encourage contractors to investigate use of low-NOx engines, alternative fuels, electrification, catalytic converters, particulate traps, and other advanced technology, whenever feasible.
5. Encourage the use of CARB reformulated diesel fuel in off-road equipment.

The following measures would also minimize PM10 emissions associated with fugitive dust from construction activities:

1. Minimize traffic speeds on all unpaved roads.
2. Suspend grading and demolition activities when wind speeds (as instantaneous gusts) exceed 25 mph.

Implementation of Phase 1B mitigation measures would reduce Phase 2B construction emissions, but not to a level of insignificance.

Operation

Since operation of the combined Phase 1B and 2B project would exceed the SCAQMD emission thresholds, mitigation measures were analyzed to determine their effectiveness in reducing these emissions to insignificance. The most feasible measures to reduce project emissions would apply to the diesel- and gasoline-powered terminal and railyard equipment. These measures would include (1) use of two degree injection timing retard on all diesel-powered equipment to reduce NOx emissions by 15 percent; (2) use of clean fuels, such as liquid propane gas (LPG); and (3) electrification of equipment. However, Table 3.1-7 shows that with the elimination of terminal and railyard equipment emissions by electrification, Phase 1B or 2B emissions would still be significant for all pollutants.

Control technologies are available that could substantially reduce emissions from oceanic vessels. These strategies include engine modifications, exhaust treatment, and fuel modifications. For example, use of low-sulfur diesel fuel in container ships during hotelling activities would reduce SOx emissions from these sources. However, implementation of these measures often requires a higher initial capital cost, higher maintenance cost, and increased fuel consumption (AEC, 1996). Furthermore, the LAHD lacks jurisdictional authority over these vessels and implementation of these measures could create an unfair trade advantage if part of the worldwide vessel fleet chooses not to participate. Implementation of these measures would therefore have to be mandated at the federal or international level, rather than by state or local authorities.

In September 1997, the International Maritime Organization (IMO) adopted NOx emission limitations that will apply to new oceanic vessels with diesel engines larger than 175 Hp. These standards take effect in the year 2000. The USEPA is in the process of developing national emission limitation standards for diesel-powered marine engines larger than 50 Hp and manufactured in the U.S. These standards (1) could apply to as many as three marine vessel engine types and (2) could range from the IMO NOx standards to standards for all criteria pollutants, including NOx standards more stringent than those developed by the IMO (USEPA 1998). The USEPA emission standards could take effect as early as the year 2000. Implementation of the IMO/USEPA standards will help to reduce emissions from ocean going vessels in the project region in future years. Control measure M13 in the 1994 and 1997 AQMP also contains techniques to reduce the impact of marine vessel emissions in the project region. These include (1) a reduction in cargo vessel speeds within SCAB waters to reduce emissions, (2) relocation of the shipping lanes farther offshore to reduce onshore impacts from cargo vessel emissions, and (3) adoption of the IMO/USEPA vessel emission standards. An atmospheric dispersion study was performed in 1997 to evaluate the effects of relocating the shipping lanes farther offshore the SCAB. The results of this study will be released by 1999.

Emissions from heavy-duty trucks would mainly be reduced by measures that modify operations, such as reducing idling time and trip reduction methods. The existing USEPA and CARB heavy-duty vehicle emission standards that apply to new vehicles will reduce basin-wide emissions as these vehicles replace the existing, more polluting vehicle fleet. Additionally, the revised USEPA heavy-duty vehicle emission standards of December 1997 will reduce emissions of non-methane hydrocarbons (NMHCs) (essentially ROGs) and NOx by over 50 percent from the 1998 standards. These standards will apply to new vehicle models beginning in the year 2004 and will further reduce NOx, NMHC, and PM10 emissions within the SCAB.

In summary, implementation of the above mentioned regulatory measures would reduce emissions from Alternative B operational sources to less than those identified in Table 3.1-7 in future years. However, Phase 1B or 2B emissions would still be expected to exceed the SCAQMD emission thresholds and would remain significant for all pollutants. Implementation of the following measures are suggested to further reduce emissions from project operational sources:

1. When feasible, operate Port facilities 24 hours per day to shift operational and cargo transport activities away from peak traffic hours, thereby increasing the rate of cargo transport;
2. To the extent feasible, have ship operators use the cleanest fuels available for use in vessels;
3. Investigate the feasibility of using clean fuels and electric power on dock-side equipment. Use of these technologies should be based on their emissions reduction potential and financial competitiveness;
4. Configure parking to minimize traffic interference;
5. Implement injection engine-timing retard on all diesel-powered equipment, including vessels, where feasible;
6. To minimize idling emissions from container trucks, encourage tenants to design terminal facilities and implement measures to use the Internet web site Dispatch System, created by the Intermodal Committee (netsite at http//www.laintermodal.com). This system provides

subscribers, such as terminal and truck operators, (1) information about cargo conditions at Port terminals and (2) a bulletin board system for truck operators to communicate with terminals and each other;

The Deep Draft EIS/EIR included the above measures one through four to mitigate emissions from the operation of a container terminal on Pier 400 (LAHD and USACE, 1992).

If the Pier 400 container terminals employ 250 or more people, the facility would be subject to the SCAQMD Rule 2202 requirement of meeting annual emission reduction targets related to commuter vehicle emissions.

3.1.7.3 Gap Closure Alternative

The level of significance does not change when considering impacts for the Gap Closure Alternative. Therefore, mitigation measures for each alternative would equally apply to the Gap Closure Alternative.

3.1.8 CUMULATIVE IMPACTS

3.1.8.1 Proposed Project

Cumulative impacts resulting from Phase 1A or 2A of the proposed project, in combination with impacts from any reasonably foreseeable future project, would occur during construction or operation activities. Ambient pollutant impacts from construction activities could be significant if project emissions, combined with non-project emissions, exceed any ambient air quality standard. However, since construction emissions would exceed the SCAQMD significance thresholds, mitigation measures have been identified that would minimize construction impacts. Operational emissions from Phase 1A or 2A of the proposed project would exceed the SCAQMD thresholds and cumulative impacts from this portion of the project would also be considered significant on a localized scale. However, cumulative impacts on a regional scale would be considered to be insignificant for all pollutants except O3 (ROG and NOx), as the proposed action would be consistent with the 1997 AQMP and these planning documents show attainment of all ambient air quality standards in future years except for the California O3 standard.

3.1.8.2 Alternative Design

Cumulative impacts resulting from Phase 1B or 2B of the Alternative B project, in combination with impacts from any reasonably foreseeable future project, would occur during construction or operation activities. Ambient pollutant impacts from construction activities could be significant if project emissions, combined with non-project emissions, exceed any ambient air quality standard. However, since construction emissions would exceed the SCAQMD significance thresholds, mitigation measures have been identified that would minimize construction impacts. Operational emissions from Phase 1B or 2B would exceed the SCAQMD thresholds and cumulative impacts from this portion of the project would also be considered significant on a localized scale. However, cumulative impacts on a regional scale would be considered to be insignificant for all pollutants except O3 (ROG and NOx), as the proposed action would be consistent with the 1997 AQMP and these planning documents show attainment of all ambient air quality standards in future years except for the California O3 standard.

3.1.8.3 Gap Closure Alternative

Cumulative impacts resulting from Phase 1B or 2B of the Alternative B project, in combination with impacts from any reasonably foreseeable future project, would occur during construction or operation activities. Ambient pollutant impacts from construction activities could be significant if project emissions, combined with non-project emissions, exceed any ambient air quality standard. However, since construction emissions would exceed the SCAQMD significance thresholds, mitigation measures have been identified that would minimize construction impacts. Operational emissions from Phase 1B or 2B would exceed the SCAQMD thresholds and cumulative impacts from this portion of the project would also be considered significant on a localized scale. However, cumulative impacts on a regional scale would be considered to be insignificant for all pollutants except O3 (ROG and NOx), as the proposed action would be consistent with the 1997 AQMP and these planning documents show attainment of all ambient air quality standards in future years except for the California O3 standard.

3.1.9 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

3.1.9.1 Proposed Project

Emissions from the construction of Phases 1A or 2A would result in significant unavoidable adverse air quality impacts, as mitigation measures would be unable to reduce emissions to less than the SCAQMD significance thresholds. However, construction impacts would be temporary and intermittent and would cease at the end of the construction period. Emissions from the operation of Phases 1A or 2A would exceed the SCAQMD emission thresholds. Project emissions would be reduced by proposed mitigation measures, but they would still exceed the SCAQMD thresholds and would result in significant unavoidable adverse air quality impacts. However, the project represents a less polluting design compared to a facility without a dock-side railyard, as it would produce less truck VMT. Additionally, if the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this could increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action.

3.1.9.2 Alternative Design

Emissions from the construction of Phase 1B or 2B would result in significant unavoidable adverse air quality impacts, as mitigation measures would be unable to reduce emissions to less than the SCAQMD significance thresholds, except for ROG emissions during Phase 2B construction. However, construction impacts would be temporary and intermittent and would cease at the end of the construction period. Emissions from the operation of Phase 1B or 2B would exceed the SCAQMD emission thresholds. Project emissions would be reduced by proposed mitigation measures, but they would still exceed the SCAQMD thresholds and would result in significant unavoidable adverse air quality impacts. However, the project represents a less polluting design compared to a facility without a dock-side railyard, as it would produce less truck VMT. Additionally, if the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this could increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action.

3.1.9.3 Gap Closure Alternative

Emissions from the construction of Phases 1A or 2A would result in significant unavoidable adverse air quality impacts, as mitigation measures would be unable to reduce emissions to less than the SCAQMD significance thresholds, except for ROG emissions during Phase 2B construction.. However, construction impacts would be temporary and intermittent and would cease at the end of the construction period. Emissions from the operation of Phases 1A or 2A would exceed the SCAQMD emission thresholds. Project emissions would be reduced by proposed mitigation measures, but they would still exceed the SCAQMD thresholds and would result in significant unavoidable adverse air quality impacts. However, the project represents a less polluting design compared to a facility without a dock-side railyard, as it would produce less truck VMT. Additionally, if the Pier 400 facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no project scenario, this could increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed action.

3.1.10 COMPARISON OF ALTERNATIVES

3.1.10.1 Construction Impacts

See table 3.1-10 for a comparison of construction impacts between design alternatives.

Table 3.1-10 Comparisons of Peak Daily Emissions from Construction of the Pier 400 Project

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1A - Proposed Project					
Mitigated Peak Daily Emissions	220*****	1,505*****	2,336*****	134	997*****
Phase 1A - Proposed Project with Gap Fill					
Mitigated Peak Daily Emissions	201*****	1,431*****	2,000*****	82	986*****
Phase 1B - Alternative Design					
Mitigated Peak Daily Emissions	312*****	2,109*****	3,295*****	184*****	1,500*****
Phase 1B Alternative Design with Gap Fill					
Mitigated Peak Daily Emissions	295*****	1,954*****	2,959*****	132	1,489*****
Phase 2A - Proposed Project					
Mitigated Peak Daily Emissions	134*****	906*****	1,359*****	68	391*****
Phase 2A - Proposed Project with Gap Fill					
Mitigated Peak Daily Emissions	134*****	906*****	1,359*****	68	391*****
Phase 2B Alternative Design					
Mitigated Peak Daily Emissions	73	521	782*****	47	263*****
Phase 2B Alternative Design with Gap Fill					
Mitigated Peak Daily Emissions	73	521	782*****	47	263*****
SCAQMD Daily Significance Thresholds	**75**	**550**	**100**	**150**	**150**

***** = Significant Impact

This table shows that the Proposed Project with Gap Fill has the lowest estimated construction emissions for all alternatives assessed for Phase 1. The Alternative Design and Alternative Design with Gap Fill have the the lowest estimated construction emissions for all alternatives assessed for Phase 2. This is primarily due to staging of the construction phases. Construction of the Proposed Project is more evenly spaced out between phases. Construction of the Alternative Design is more front end loaded with more construction in Phase 1 than Phase 2.

3.1.10.2 Operational Impacts

See table 3.1-11 for a comparison of operational impacts between design alternatives.

Overall, the Proposed Project would have lower operational air emissions. But, that is to be expected given the smaller terminal size and throughput of the Proposed Project. The Alternative Design results in slightly lower emissions per TEU, demonstrating a marginal savings of scale.

Table 3.1-11 Comparisons of Peak Daily Emissions from Operation of the Pier 400 Project

	Daily Emissions (Pounds)				
Project Phase/Activity	ROG	CO	NOx	SOx	PM10
Phase 1A - Proposed Project	418*	1,532*	6,054*	1,695*	365*
Phase 1A - Proposed Project with Gap Fill	418*	1,532*	6,054*	1,695*	365*
Phase 1B - Alternative Design	744*	2,704*	10,807*	3,050*	652*
Phase 1B - Alternative Design with Gap Fill	744*	2,704*	10,807*	3,050*	652*
Phase 2A - Proposed Project	468*	1,699*	6,775*	1,898*	408*
Phase 2A - Proposed Project with Gap Fill	468*	1,699*	6,775*	1,898*	408*
Phase 2B - Alternative Design	370*	1,347*	5,365*	1,526*	325*
Phase 2B Alternative Design with Gap Fill	370*	1,347*	5,365*	1,526*	325*
Phases 1A and 2A Combined - Proposed Project	886*	3,231*	12,830*	3,593*	773*
Phases 1A and 2A Combined - Proposed Project with Gap Fill	886*	3,231*	12,830*	3,593*	773*
Phases 1B and 2B Combined - Alternative Design	1,114*	4,051*	16,172*	4,576*	997*
Phases 1B and 2B Combined - Alternative Design with Gap Fill	1,114*	4,051*	16,172*	4,576*	997*
SCAQMD Daily Significant Thresholds	**55**	**550**	**55**	**150**	**150**

* = Significant Impact

3.1.11 MITIGATION MONITORING PROGRAM

3.1.11.1 Proposed Project

The Mitigation Monitoring Program for Meteorology and Air Quality is shown below in Table 3.1.12. These measures apply to the proposed project and to the proposed project with gap closure.

Table 3.1-12 Mitigation Monitoring Program - Proposed Project

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
ROG, CO, NOx, and PM10 emissions during construction.	Properly tune and maintain all construction equipment, include engine timing retard where feasible.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
	Encourage ridesharing and mass transit use among construction personnel.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
	Discontinue construction activities during Stage II smog alerts in the Long Beach source receptor area.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
	Use low-NOx engines whenever feasible. Use alternative fuels including electrification, catalytic converters, particulate traps,and other advanced technology whenever feasible.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
ROG emissions during construction.	Encourage the use of CARB reformulated diesel fuel in off-road equipment during construction.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
PM10 emissions during construction.	Maintain traffic speeds of 15 mph or less on all unpaved Surfaces	Significant	Contractor	Annually, during construction.
	Suspend grading activities when wind speeds exceed 25 mph	Significant	Contractor	Annually, during construction.
ROG, CO, NOx, SOx, and PM10 emissions during operations	Encourage the use of clean, fuels electric power, and injection timing retard (where feasible)on diesel-powered terminal yard equipment.	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Encourage the use of clean fuels in all marine vessels.	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Encourage the use of the internet web site “Dispatch System” created by the Intermodal Committee (netsite at: http//www.laintermodal.com).	Significant	Tenant	Prior to startup and every 5 years thereafter.

Table 3.1-12 Mitigation Monitoring Program - Proposed Project (cont'd)

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
	Encourage tenant(s) to schedule goods movement for off peak traffic hours when feasible.	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Configure parking to minimize traffic interference.	Significant	Tenant	Prior to startup.

3.1.11.2 Alternative Design

The Mitigation Monitoring Program for Meteorology and Air Quality is shown below in Table 3.1.13. These measures apply to the alternative design and to the alternative design with gap closure.

Table 3.1-13 Mitigation Monitoring Program - Alternative Design

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
ROG, CO, NOx, and PM10 emissions during construction.	Properly tune and maintain all construction equipment, include engine timing retard where feasible.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
	Encourage ridesharing and mass transit use among construction personnel.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
	Discontinue construction activities during Stage II smog alerts in the Long Beach source receptor area.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
	Use low-NOx engines whenever feasible. Use alternative fuels including electrification, catalytic converters, particulate traps,and other advanced technology whenever feasible.	Significant	Contractor/ LAHD	Prior to construction and annually thereafter.
ROG emissions during construction.	Encourage the use of CARB reformulated diesel fuel in off-road equipment during construction.	Significant Phase 1B and insignificant Phase 2B	Contractor/ LAHD	Prior to construction and annually thereafter.

Table 3.1-13 Mitigation Monitoring Program - Alternative Design (cont'd)

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
PM10 emissions during construction.	Maintain traffic speeds of 15 mph or less on all unpaved Surfaces	Significant	Contractor	Annually, during construction.
	Suspend grading activities when wind speeds exceed 25 mph	Significant	Contractor	Annually, during construction.
ROG, CO, NOx, SOx, and PM10 emissions during operations	Encourage the use of clean, fuels electric power, and injection timing retard (where feasible)on diesel-powered terminal yard equipment.	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Encourage the use of clean fuels in all marine vessels.	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Encourage the use of the internet web site "Dispatch System" created by the Intermodal Committee (netsite at: http//www.laintermodal.com).	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Encourage tenant(s) to schedule goods movement for off peak traffic hours when feasible.	Significant	Tenant	Prior to startup and every 5 years thereafter.
	Configure parking to minimize traffic interference.	Significant	Tenant	Prior to startup.

3.1.12 PROJECT CONSISTENCY WITH APPLICABLE REGIONAL PLANS

3.1.12.1 Proposed Project

Section 15125 of the State CEQA Guidelines requires that EIRs discuss whether a proposed project is consistent with applicable General Plans and regional plans. Specifically, the EIR should discuss project consistency with the 1997 AQMP developed for the SCAB, the Growth Management Plan (GMP) for the Southern California Association of Governments (SCAG), the SCAG Regional Mobility Plan (RMP), and the Air Quality Element of the General Plan for the City of Los Angeles. The California Coastal Commission approved the Port Master Plan, which included the operation of a container terminal on the Pier 400 landfill.

According to the SCAQMD, the purpose of the consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus if it would interfere with the regions ability to comply with federal and state air quality standards. If the project is inconsistent, local governments should consider project modifications or inclusion of mitigation measures to eliminate the inconsistency. Even if a project is found consistent it could still have a significant impact on air quality under CEQA. For example, if the analysis demonstrates a project is consistent with the regional air quality plans and local Air Quality Element, the project could still have a significant effect on air quality by exceeding significance thresholds (SCAQMD, 1993).

Consistency of the proposed project with the GMP can be demonstrated by comparing the projects density, location, and land use pattern with the adopted local General Plan and associated zoning ordinances that were in place when the GMP was adopted. The Pier 400 project (1) would not require any zoning changes nor cause an appreciable change in the number and location of population or housing units and (2) would have a positive effect on employment growth assumptions used in the GMP. As a result, the project will not significantly change the density, location, and land use pattern and would be consistent with the GMP. Consistency of the proposed project with the RMP would be achieved by the development of the dock-side railyard, which would reduce VMT by the replacement of truck trips with train trips.

The project would be consistent with the air quality elements of the General Plan. These include (1) the land use policy of integrating land uses and densities that support transit corridors, (2) the noise policy of facilitating off-peak period truck operations in areas not adjacent to residential developments, and (3) the air quality policy of implementing general AQMP control strategies such as the replacement of trucks with trains for increased movement of goods, and increased use of transit corridors, grade separations, and ICTFs.

The Deep Draft EIS/EIR determined that emissions from the operation of terminals developed by the Deep Draft Project were included in the emission forecasts of the 1991 AQMP. Consequently, the project was deemed to be consistent with this planning document (LAHD and USACE, 1992). The Deep Draft EIS/EIR also determined that operational emissions would conform to the 1991 AQMP. A 337-acre container terminal was included as part of the Deep Draft Project Increment 4 on the Pier 400 landfill. Since the 1994 and 1997 AQMPs also included the Deep Draft Project operational emission in their emission forecasts, the comparable Pier 400 container facility would also be consistent with these planning documents. Additionally, this terminal will contribute towards obtaining air quality attainment goals by using larger ships. This will result in fewer ship visits, reduced air emissions per volume of cargo moved, associated transportation infrastructure improvements, and improved terminal efficiencies.

3.1.12.1 Alternative Design

Section 15125 of the State CEQA Guidelines requires that EIRs discuss whether a proposed project is consistent with applicable General Plans and regional plans. Specifically, the EIR should discuss project consistency with the 1997 AQMP developed for the SCAB, the Growth Management Plan (GMP) for the Southern California Association of Governments (SCAG), the SCAG Regional Mobility Plan (RMP), and the Air Quality Element of the General Plan for the City of Los Angeles. The California Coastal Commission approved the Port Master Plan, which included the operation of a container terminal on the Pier 400 landfill.

According to the SCAQMD, the purpose of the consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus if it would interfere with the region's ability to comply with federal and state air quality standards. If the project is inconsistent, local governments should consider project modifications or inclusion of mitigation measures to eliminate the inconsistency. Even if a project is found consistent it could still have a significant impact on air quality under CEQA. For example, if the analysis demonstrates a project is consistent with the regional air quality plans and local Air Quality Element, the project could still have a significant effect on air quality by exceeding significance thresholds (SCAQMD, 1993).

Consistency of the Alternative Design with the GMP can be demonstrated by comparing the project's density, location, and land use pattern with the adopted local General Plan and associated zoning ordinances that were in place when the GMP was adopted. The Pier 400 project (1) would not require any zoning changes nor cause an appreciable change in the number and location of population or housing units and (2) would have a positive effect on employment growth assumptions used in the GMP. As a result, the project will not significantly change the density, location, and land use pattern and would be consistent with the GMP. Consistency of Alternative B with the RMP would be achieved by the development of the dock-side railyard, which would reduce VMT by the replacement of truck trips with train trips.

The Alternative Design would be consistent with the air quality elements of the General Plan. These include (1) the land use policy of integrating land uses and densities that support transit corridors, (2) the noise policy of facilitating off-peak period truck operations in areas not adjacent to residential developments, and (3) the air quality policy of implementing general AQMP control strategies such as the replacement of trucks with trains for increased movement of goods, and increased use of transit corridors, grade separations, and intermodal container transfer facilities (ICTFs).

The Deep Draft EIS/EIR determined that emissions from the operation of terminals developed by the Deep Draft Project were included in the emission forecasts of the 1991 AQMP. Consequently, the project was deemed to be consistent with this planning document (LAHD and USACE, 1992). The Deep Draft EIS/EIR also determined that operational emissions would conform to the 1991 AQMP. A 337-acre container terminal was included as part of the Deep Draft Project Increment 4 on the Pier 400 landfill. Since the 1994 and 1997 AQMPs also included the Deep Draft Project operational emission in their emission forecasts, the comparable Pier 400 Alternative 1B container facility would also be consistent with these planning documents. Additionally, this terminal will contribute towards obtaining air quality attainment goals by using larger ships. This will result in fewer ship visits, reduced air emissions per volume of cargo moved, associated transportation infrastructure improvements, and improved terminal efficiencies.

Development of the Alternative Design would exceed the level of container terminal development proposed by the Deep Draft Project for Pier 400. However, this increment, in addition to the Alternative 1B and Pier 300 container facilities, would approximately equal the level of container terminal development proposed in the Deep Draft Project for the POLA. Therefore, the combined Alternative 1B and 2B project would be consistent with the 1994 and 1997 AQMPs.

3.1.13 Clean Air Act Conformity

3.1.13.1 Proposed Project and Gap Closure Alternative

Section 176(c) of the Federal Clean Air Act Amendments of 1990 requires that prior to taking a federal action, federal agencies assure that the action conforms to the applicable State Implementation Plan (SIP) developed pursuant to Section 110 of the Act. Section 176(c) provides that:

(A) conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and

(B) that such activities will not -

- i. cause or contribute to any new violation of any standard in any area;
- ii. increase the frequency or severity of any existing violation of any standard in any area;
- iii. delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Section 176(c) was enacted by Congress to ensure that large federal projects did not hinder states' efforts in reaching attainment. This provision, for example, encourages the construction of federal projects that reduce overall emissions, while it discourages those projects that increase emissions. Section 176(c) uses the conformity determination process to determine whether the emissions of the federal action will help or hinder a state's progress toward attainment.

"Federal actions" are defined in the implementation guidelines for Section 176(c) in 40 CFR Parts 6, 51 and 93 (Federal Register,November 30, 1993) as "supports in any way, provides financial assistance, or licenses, permits or approves" a proposed project. Criteria for a finding of conformity include:

1. That direct plus those indirect emissions reasonably under federal control not exceed specific annual "de minimis" thresholds,
2. That attributable emissions have already been specifically identified and accounted for in the SIP attainment demonstration,
3. That ozone precursors are fully offset through enforceable emissions reductions,
4. That non-ozone precursors are demonstrated by modeling to not cause standards to be exceeded,

5. That the project can be accommodated within the currently approved emissions budget, or

6. That the governor commit to revising the SIP in a timely manner while including the emissions from the proposed project. A number of conditions must be met for this to be an acceptable conformity demonstration criterion.

SCAG is the designated Metropolitan Planning Organization responsible under the Federal Clean Air Act for determining Conformity of Projects to the SIP Pursuant to 42 USC Section 7506

In addition, the proposed project has been determined to be consistent with the 1994 AQMP, the most recent USEPA-approved AQMP for the South Coast Air Basin. Port expansion plans were incorporated into the growth rate factors used to develop the 1994 AQMP out year emission forecasts. Therefore, the construction and operation of planned Port facilities, such as the proposed project, are included in, and consistent with, the most recent emission estimates for the South Coast Air Basin.

The long term air quality benefits of the proposed improvements result from various efficiency enhancing elements of the Pier 400 Container Terminal and Transportation Corridor Project. By providing for a more efficient terminal with improved rail and cargo transfer facilities emissions per unit of cargo handled will decrease. The efficient transport of cargo minimizes the impacts to transportation movement and thereby minimizes air quality impacts to the region. The proposed improvements are therefore beneficial to the long-term air quality of the South Coast Air Basin and attainment of the National Ambient Air Quality Standards (NAAQS).

The definition of which emissions are attributable to the project is critical to the conformity finding. For emissions to be included, they must be reasonably foreseeable, and must be controllable by the federal action. The U.S. Army Corps of Engineers (USACE) will issue permits for the dredging and for wharf construction. With only minor exception, the whole of the proposed action constitutes "reasonably foreseeable" and "controllable" emissions. A finding of conformity must include all the construction activity emissions shown for each alternative.

The only emission that could not be completely offset in the short term are those resulting from the construction of the proposed improvements. The construction activities would result in temporary and intermittent increases in air emissions in the harbor area that will cease upon completion of construction. These short term increases in emission cannot be avoided and are necessary in order to achieve the long term air quality benefits associated with the proposed project

The proposed project includes terminal improvements such as near dock intermodal rail resulting in more efficient transportation of cargo which minimizes air quality impacts in the South Coast Air Basin. Operational emissions associated with the Pier 400 Container Terminal and Transportation Corridor Project will be less than those that would occur if the project is not built. Therefore, the proposed project is beneficial to the long term air quality of the South Coast Air Basin and will not interfere with the attainment of the NAAQS.

The basis for supporting a finding of conformity is that the project implements actions adopted in the SIP related to transportation of goods. The proposed project is consistent with the AQMP that became part of the approved SIP. The proposed project implements aspects of the adopted Port 2020 Plan included in the SIP. It facilitates a reduction in emissions from existing facilities. Its impact is less than for the No-Project alternative. The short-term emissions levels in excess of the "de minimis" thresholds thus do not impede, and actually assist, in the future attainment of clean air standards. Therefore, the proposed project is consistent with the SIP and meets the requirements of Section 176(c) based on this analysis and the analysis conducted in the Deep Draft Navigation Improvements Environmental Impact Statement/ Environmental Impact Report (LAHD and USACE, 1992).

3.1.13.1 Alternative Design

Section 176(c) of the Federal Clean Air Act Amendments of 1990 requires that prior to taking a federal action, federal agencies assure that the action conforms to the applicable State Implementation Plan (SIP) developed pursuant to Section 110 of the Act. Section 176(c) provides that:

(A) conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and

(B) that such activities will not -

i. cause or contribute to any new violation of any standard in any area;

ii. increase the frequency or severity of any existing violation of any standard in any area;

iii. delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Section 176(c) was enacted by Congress to ensure that large federal projects did not hinder states' efforts in reaching attainment. This provision, for example, encourages the construction of federal projects that reduce overall emissions, while it discourages those projects that increase emissions. Section 176(c) uses the conformity determination process to determine whether the emissions of the federal action will help or hinder a state's progress toward attainment.

"Federal actions" are defined in the implementation guidelines for Section 176(c) in 40 CFR Parts 6, 51 and 93 (Federal Register,November 30, 1993) as "supports in any way, provides financial assistance, or licenses, permits or approves" a proposed project. Criteria for a finding of conformity include:

1. That direct plus those indirect emissions reasonably under federal control not exceed specific annual "de minimis" thresholds, or
2. That attributable emissions have already been specifically identified and accounted for in the SIP attainment demonstration, or
3. That ozone precursors are fully offset through enforceable emissions reductions, or,
4. That non-ozone precursors are demonstrated by modeling to not cause standards to be exceeded, or
5. That the project can be accommodated within the currently approved emissions budget, or
6. That the governor commit to revising the SIP in a timely manner while including the emissions from the proposed project. A number of conditions must be met for this to be an acceptable conformity demonstration criterion.

SCAG is the designated Metropolitan Planning Organization responsible under the Federal Clean Air Act for determining Conformity of Projects to the SIP Pursuant to 42 USC Section 7506

In addition, the alternative design has been determined to be consistent with the 1994 AQMP, the most recent USEPA-approved AQMP for the South Coast Air Basin. Port expansion plans were incorporated into the growth rate factors used to develop the 1994 AQMP out year emission forecasts. Therefore, the construction and operation of planned Port facilities, such as the alternative design, are included in, and consistent with, the most recent emission estimates for the South Coast Air Basin.

The long term air quality benefits of the proposed improvements result from various efficiency enhancing elements of the Pier 400 Container Terminal and Transportation Corridor Project. By providing for a more efficient terminal with improved rail and cargo transfer facilities emissions per unit of cargo handled will decrease. The efficient transport of cargo minimizes the impacts to transportation movement and thereby minimizes air quality impacts to the region. The proposed improvements are therefore beneficial to the long-term air quality of the South Coast Air Basin and attainment of the National Ambient Air Quality Standards (NAAQS).

The definition of which emissions are attributable to the project is critical to the conformity finding. For emissions to be included, they must be reasonably foreseeable, and must be controllable by the federal action. The U.S. Army Corps of Engineers (USACE) will issue permits for the dredging and for wharf construction. With only minor exception, the whole of the proposed action constitutes "reasonably foreseeable" and "controllable" emissions. A finding of conformity must include all the construction activity emissions shown for each alternative.

The only emission that could not be completely offset in the short term are those resulting from the construction of the proposed improvements. The construction activities would result in temporary and intermittent increases in air emissions in the harbor area that will cease upon completion of construction. These short term increases in emission cannot be avoided and are necessary in order to achieve the long term air quality benefits associated with the proposed project

The proposed project includes terminal improvements such as near dock intermodal rail resulting in more efficient transportation of cargo which minimizes air quality impacts in the South Coast Air Basin. Operational emissions associated with the Pier 400 Container Terminal and Transportation Corridor Project will be less than those that would occur if the project is not built. Therefore, the alternative design is beneficial to the long term air quality of the South Coast Air Basin and will not interfere with the attainment of the NAAQS.

The basis for supporting a finding of conformity is that the project implements actions adopted in the SIP related to transportation of goods. The alternative design is consistent with the AQMP that became part of the approved SIP. The action implements aspects of the adopted Port 2020 Plan included in the SIP. It facilitates a reduction in emissions from existing facilities. Its impact is less than for the No-Project alternative. The short-term emissions levels in excess of the "de minimis" thresholds thus do not impede, and actually assist, in the future attainment of clean air standards. Therefore, the alternative design is consistent with the SIP and meets the requirements of Section 176(c) based on this analysis and the analysis conducted in the Deep Draft Navigation Improvements Environmental Impact Statement/ Environmental Impact Report (LAHD and USACE, 1992).

3.1.14 IMPACTS FROM PROJECT ALTERNATIVES

3.1.14.1 Proposed Project

The following is a presentation of air quality impacts that would occur from the construction and operation of the (1) Phases 1A and 2A design operated by separate customers and (2) no project alternatives. Emissions from the Phases 1A and 2A separate terminals alternative were compared to emissions from the proposed action and no project alternative to determine the level of impacts between each scenario.

Separate Terminals Alternative

Construction

Construction activities associated with development of Phases 1A and 2A as separate facilities would be nearly identical to construction activities from the proposed action, except that there would be additional work to construct two gates and more fencing versus the proposed action. As determined for the proposed action, construction emissions from this alternative during a peak day of activity would also exceed the SCAQMD emission thresholds for ROG, CO, NOx, and PM10. These emissions would therefore be considered significant. However, the emissions would be temporary in nature and would cease at the end of construction activities.

The same mitigation measures considered for the construction of the proposed action would also effectively reduce emissions from the alternative, but not to insignificance. However, fugitive dust emissions would actually be reduced by more than the 75 percent assumed in the analysis, since project construction activities would have to comply with SCAQMD Fugitive Dust Rule 403. This rule strongly limits the amount of fugitive dust that may be emitted during construction activities, such as earthmoving or site preparation. Prior to construction, a contractor must obtain a SCAQMD approved Fugitive Dust Emissions Control Plan, which demonstrates adequate fugitive dust control measures.

Operation

Operation of the individual Phase 1A and 2A terminals as separate facilities would produce nearly identical emissions and air quality impacts as those estimated for the combined Phase 1A and 2A facility. As determined for the proposed action, operational emissions from this alternative would exceed all SCAQMD emission thresholds and these emissions would therefore be significant. The same mitigation measures considered for the operation of the proposed action would also effectively reduce emissions from the alternative, but not to insignificance.

No-Project Alternative

Construction

Under the no-project alternative, a container facility would not be developed on the Pier 400 landfill and therefore no construction impacts would occur from this alternative.

Operation

Under the no-project alternative, a container facility would not be developed on the Pier 400 landfill and therefore operational impacts from this alternative would not occur. However, if the Pier 400 container facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no-project scenario, this cargo could eventually overload the future capacity of the POLA. If this were the case, ships would spend extra time waiting outside the breakwater until a terminal became available to handle its cargo. This would increase emissions per ship visit, compared to emissions from a ship visit that would occur under the proposed or separate terminals alternatives. As a result, the no-project alternative could have greater air quality impacts than either the proposed or separate terminals alternatives.

3.1.14.2 Alternative Design

The following is a presentation of air quality impacts that would occur from the no project alternative. Impacts from a another alternative (Proposed Project) are addressed above.

No-Project Alternative

Construction

Under the No-Project Alternative, a container facility would not be developed on the Pier 400 landfill and therefore no construction impacts would occur from this alternative.

Operation

Under the No-Project Alternative, a container facility would not be developed on the Pier 400 landfill and therefore operational impacts from this alternative would not occur. However, if the Pier 400 container facility was not developed and some cargo identified for the proposed action were to be handled at the POLA under the no-project scenario, this cargo could eventually overload the future capacity of the POLA. If this were the case, ships would spend extra time waiting outside the breakwater until a terminal became available to handle its cargo. This would increase emissions per ship visit, compared to emissions from a ship visit that would occur under Alternative B. As a result, the No-Project Alternative could have greater air quality impacts than the proposed alternative.

3.2 GROUND TRANSPORTATION

3.2.1 INTRODUCTION

Traffic impacts of the Port of Los Angeles Pier 400 Container Terminal and Transportation Corridor Project are addressed below.

3.2.1.1 Data Sources

Additional information specific for this project is contained in special studies prepared for the Los Angeles Harbor Department by Science Applications International Corporation (SAIC, 1998c & 1998d).

3.2.2 ENVIRONMENTAL SETTING

Regional access to the harbor area is provided by a network of freeway and arterial facilities, as shown on Figure 3.2-1. The freeway network consists of the Harbor Freeway (I-110), the Long Beach Freeway (I-710), the San Diego Freeway (I-405), and the Terminal Island Freeway (SR 103), while the arterial street network includes Henry Ford Avenue, Alameda Street, Anaheim Street, and Pacific Coast Highway (State Route 1). Access to Terminal Island is provided by three bridges: the Gerald Desmond Bridge on the east; the Commodore Heim Bridge on the north; and the Vincent Thomas Bridge on the west. These bridges link Terminal Island to the Long Beach Freeway, the Terminal Island Freeway, and the Harbor Freeway, respectively. The key streets on Terminal Island that serve as access routes to the Pier 400 site are Ocean Boulevard, Seaside Avenue, and Navy Way.

The Harbor and Long Beach Freeways are north-south highways that extend from the port area to downtown Los Angeles. They each have six lanes in the vicinity of the harbor and widen to eight lanes to the north. The San Diego Freeway is an eight-lane freeway that passes through the Los Angeles region generally parallel to the coast. The Terminal Island Freeway is a short highway that extends from Terminal Island across the Heim Bridge and terminates at Willow Street. It is six lanes wide on the southern segment, narrowing to four lanes at Anaheim Street.

The key north-south access streets in the Wilmington area north of Terminal Island are Henry Ford Avenue and Alameda Street. These four-lane arterials provide a direct travel route between the harbor and the San Diego Freeway. Alameda Street continues to the north and serves as a key truck route between the harbor area and downtown Los Angeles. In conjunction with the Alameda Corridor project, Alameda Street is programmed to be reconstructed/widened to six lanes.

East-west circulation in the Wilmington area is provided by Anaheim Street and Pacific Coast Highway. These four- and six-lane arterial routes intersect with the Terminal Island Freeway and extend west through Wilmington to the Harbor Freeway and east to the Long Beach Freeway and the City of Long Beach. Another key east-west arterial in the Wilmington area is Harry Bridges Avenue (formerly B Street), which runs between Alameda Street and the Harbor Freeway.

Seaside Avenue/Ocean Boulevard is the primary east-west arterial on Terminal Island. This six-lane street is named Seaside Avenue within the City of Los Angeles and Ocean Boulevard within the City of Long Beach. Navy Way intersects with Seaside Avenue and extends south to Terminal Way and Reeves Avenue. The access corridor to Pier 400 would essentially be an extension of Navy Way south of Terminal Way.

Traffic volume data were collected and assembled to quantify the existing traffic conditions on the key access roads in the study area. The average daily traffic (ADT) volumes on the freeways and arterial streets, which are shown in Table 3.2-1, were obtained from Caltrans and the cities of Los Angeles and Long Beach. Peak hour intersection traffic counts at the study area intersections were taken by Stevens-Garland Associates in 1997.

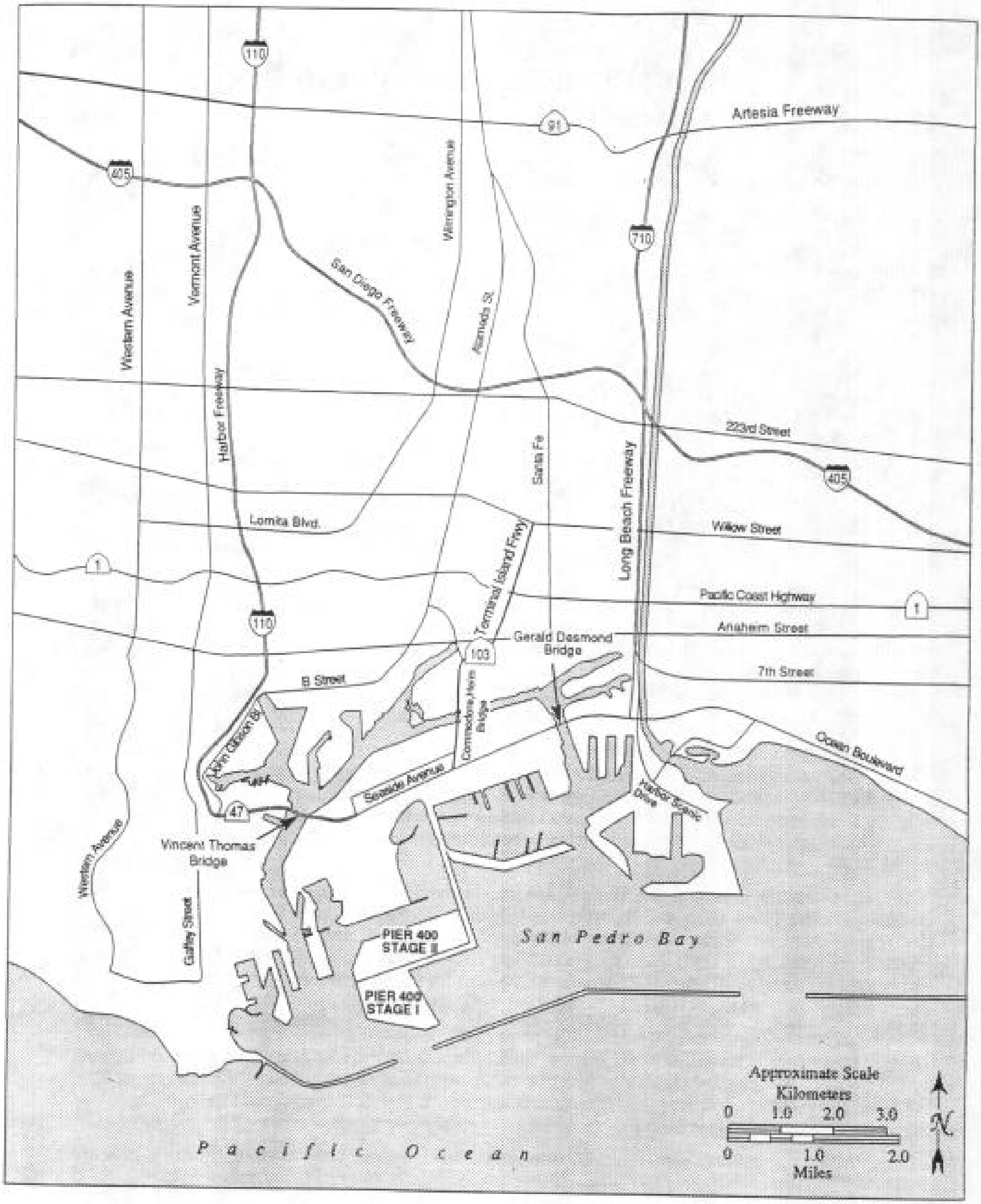


Figure 3.2-1 Regional Highway Network

Table 3.2-1 Existing Daily Traffic Volumes

Roadway/Location	Vehicles per Day
Alameda Street	
North of Pacific Coast Highway	13,000
South of Pacific Coast Highway	15,000
North of Anaheim Street	16,000
South of Anaheim Street	17,000
Henry Ford Avenue	
North of Anaheim Street	5,000
South of Anaheim Street	10,000
Anaheim Street	
West of Henry Ford Avenue	31,000
East of Henry Ford Avenue	34,000
Pacific Coast Highway (Route 1)	
West of Alameda Street	31,500
East of Alameda Street	29,000
Seaside Avenue/Ocean Boulevard	
West of Navy Way	24,000
East of Navy Way	30,000
Terminal Island Freeway (Route 103)	
South of Anaheim Street	11,300
North of Anaheim Street	15,300
Long Beach Freeway (I-710)	
Ocean Boulevard to PCH	115,000
PCH to Willow Street	134,000
Willow Street to I-405	149,000
Harbor Freeway (I-110)	
C Street to Anaheim Street	90,000
Anaheim Street to PCH	107,000
PCH to Sepulveda Boulevard	138,000
Sepulveda Boulevard to Carson Street	171,000
Carson Street to I-405	228,000
Vincent Thomas Bridge	36,000
Gerald Desmond Bridge	30,000
Commodore Heim Bridge	17,400

The volume-to-capacity (V/C) ratio is a measure of an intersection's traffic volumes as compared to the capacity of the intersection. Level of service (LOS) is a qualitative indicator of an intersection's operating conditions as represented by congestion, delay, and the V/C ratio. It is measured from LOS A (excellent Conditions) to LOS F (extreme congestion) with LOS D (V/C ratio of 0.90) typically considered to be the threshold of acceptability. The relationship between V/C ratio and level of service for a signalized intersection is summarized in Table 3.2-2.

Seven intersections in the project vicinity were analyzed to determine their operating conditions during the morning and afternoon peak periods on a typical weekday. Based on peak hour traffic volumes and turning movement counts and the existing number of lanes at each

Table 3.2-2 Relationship Between V/C Ratio and LOS

V/C Ratio	LOS	Conditions
0 to 0.600	A	Little or no delay/congestion
0.601 to 0.700	B	Slight congestion/delay
0.701 to 0.800	C	Moderate delay/congestion
0.801 to 0.900	D	Significant delay/congestion
0.901 to 1.000	E	Extreme congestion/delay
1.001+	F	Intersection failure/gridlock

intersection, the V/C ratios and corresponding LOS's were determined for each intersection, as summarized in Table 3.2-3.

For the intersections located within the City of Los Angeles (all of the intersections except Ocean Boulevard at the Terminal Island Freeway), the critical movement analysis methodology was used to determine the LOS values. A capacity value of 1,500 vehicles per hour per lane (vphpl) was assumed for intersections with two signal phases, 1,425 vphpl for intersections with three phases, and 1,375 vphpl for intersections with four or more phases. For the Ocean Boulevard/Terminal Island Freeway intersection, which is in Long Beach, the LOS was determined by using the intersection capacity utilization (ICU) methodology. A capacity value of 1,600 vphpl was used (2,880 for dual left turn lanes), with a yellow clearance interval of 0.1. These two methodologies comply with the respective analysis criteria of the two cities. As trucks use up more roadway capacity than automobiles because of their size and acceleration capabilities, a passenger car equivalent (PCE) factor of 2.0 was applied to the truck volumes for the LOS calculations for baseline conditions, which is consistent with other traffic studies prepared in the port area. As noted in the discussion of project impacts, a PCE factor of 1.68 is applied to project-generated truck traffic. The lower value reflects the observations documented in the Terminal Island Transportation Study (POLB and POLA, 1997) that trucks generated by container terminals have a relatively high percentage (32%) of bobtails (tractors without trailers).

Table 3.2-3 indicates that all of the study area intersections operate at level of service C or better during the peak periods except for the intersection of Ocean Boulevard at the Terminal Island Freeway, which operates at LOS D during both the morning and afternoon peak hours.

Table 3.2-3 Existing Intersection Levels of Service

	A.M. Peak Hour		P.M. Peak Hour	
Intersection	V/C	LOS	V/C	LOS
1 - Seaside Avenue @ Navy Way	0.514	A	0.538	A
2 - Ocean Blvd. @ T.I. Freeway	0.874	D	0.838	D
3 - Henry Ford Ave. @ T.I. Freeway Ramps/Pier A Access Road	0.520	A	0.351	A
4 - Henry Ford Ave. @ Anaheim St.	0.538	A	0.721	C
5 - Alameda Street @ Anaheim Street	0.481	A	0.505	A
6 - Alameda St. @ Pacific Coast Hwy	0.677	B	0.698	B
7 - Navy Way @ Terminal Way	0.116	A	0.264	A

The levels of service for the freeways were determined by calculating the demand-to-capacity (D/C) ratios during the morning and afternoon peak periods, as summarized on Table 3.2-4. This methodology is consistent with the guidelines of the Los Angeles County Congestion Management Program (CMP).

Table 3.2-4 Existing Freeway Segment Levels of Service

	A.M. Peak Hour			P.M. Peak Hour		
Freeway Segment	Demand	D/C	LOS	Demand	D/C	LOS
I-110 south of C Street						
Northbound	4,430	0.554	C	2,800	0.350	A
Southbound	2,875	0.359	B	4,385	0.549	B
I-710 at Willow Street						
Northbound	6,115	1.019	F(0)	6,160	1.026	F(0)
Southbound	6,270	1.045	F(0)	5,070	0.845	D
Terminal Island Freeway						
Northbound	320	0.053	A	1,215	0.203	A
Southbound	685	0.114	A	530	0.088	A

The relationship between D/C ratio and level of service for freeways is summarized in Table 3.2-5.

Table 3.2-5 Relationship Between D/C Ratio and LOS

D/C Ratio	LOS	D/C Ratio	LOS
0 - 0.35	A	1.00 - 1.25	F(0)
0.35 - 0.54	B	1.25 - 1.35	F(1)
0.54 - 077	C	1.35 - 1.45	F(2)
0.77 - 0.93	D	>1.45	F(3)
0.93 - 1.00	E		

3.2.3 IMPACT SIGNIFICANCE CRITERIA

A project or action in the Los Angeles Harbor is considered to have a significant ground transportation impact if the project or action would result in one or more of the following occurrences. These criteria were extracted from the draft document titled "EIR Standards and Practices - CEQA Significance Criteria Catalog" and from the City of Los Angeles Department of Transportation's *Traffic Study Policies and Procedures* (LADOT, 1993).

A significant rail impact would occur if the project resulted in (1) a violation of Public Utilities Commission or railroad company guidelines for operating speeds, distribution, or mix or rail traffic to and from the project, (2) an increased accident rate at railroad/highway at-grade crossings, or (3) an unacceptable increase in traffic delays and/or vehicle queuing at railroad/highway at-grade crossings.

A significant vehicular traffic/circulation impact would occur if the project results in (1) creation of an excessive grade differential between public and private property, (2) inadequate parking facilities, (3) the exceedance of vehicle weight limits on light-duty streets, (4) an inadequate access or on-site circulation system, (5) the creation of hazardous traffic conditions, or (6) an increase in an intersection's volume/capacity ration or an increase in the average daily traffic volumes on a local street in accordance with the guidelines listed in Table 3.2-6.

Two sets of criteria are shown because six of the study area intersections are located in the City of Los Angeles and one intersection (Ocean Boulevard at the Terminal Island Freeway) is located in Long Beach**.**

In addition, the Los Angeles County Congestion Management Program (CMP) indicates that a project would have a significant freeway impact if the D/C ratio increases by 0.02 or more and causes or worsens LOS F conditions.

Table 3.2-6 Significant Intersection Impact

Final Intersection Level of Service	Increase in V/C Ratio
City of Los Angeles Guidelines	
C	Equal to or greater than 0.040
D	Equal to or greater than 0.020
E or F	Equal to or greater than 0.010
City of Long Beach Guidelines	
A, B, C, or D	To E or F
E or F	Equal to or greater than 0.020

3.2.4 IMPACTS OF THE PROPOSED PROJECT

3.2.4.1 Construction

Phase 1A

There would be temporary impacts on the study area roadway system during construction of the proposed container terminal and access facilities as the construction activities would generate vehicular traffic associated with construction workers' vehicles and trucks delivering equipment and material to the site. This site-generated traffic would result in increased traffic volumes on the study area roadways for the duration of the construction period, which is expected to be about two to three years. Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in comparable impacts to the study area roadway system. Phase 1A construction activities are estimated to generate up to 500 truck trips and 4,000 automobile trips per day, based on an assumed work force of 2,200 people and 250 truck deliveries during peak construction periods, which would occur in the year 2000. The volume of construction traffic would initially be about 300 trips per day in 1999, would increase to peak levels in 2000, and would then decline through the year 2001. There would also be a localized impact on the roadways in the immediate project vicinity associated with the construction of new access roads and ramps. These construction activities may result in temporary lane blockages and disruption to traffic flow at locations where the construction zone physically interfaces with the public right-of-way. The construction contractor would be required to obtain encroachment permits and implement a construction area traffic control plan to ensure that traffic flow is adequately and safely maintained at all times through the construction zone. As assessed in the Deep Draft Navigation Improvements Environmental Impact Statement/ Environmental Impact Report (LAHD and USACE, 1992) neither the generated traffic volumes nor the physical roadway impacts during construction are expected to result in a significant traffic impact.

Phase 2A

Phase 2A construction traffic is estimated to have similar effects to Phase 1A concluding in the year 2003.

3.2.4.2 Operation

Phase 1A

Roadway

The traffic impacts of the proposed container terminal were evaluated by quantifying the projected conditions on the affected roadways and intersections in the study area for the scenarios with and without the project. The future baseline traffic conditions were developed for the Phase 1A target year of 2001, then the project-generated traffic was added to the baseline scenario for a before-and-after analysis. The methodology for the traffic impact analysis was to forecast the baseline traffic conditions for the year 2001 considering the cumulative effects of regional growth and other proposed development in the area, then add the project-generated traffic to the baseline traffic volumes and formulate a comparison of traffic conditions with and without the project.

The future baseline (without project) traffic volumes for the 2001 target year were projected by increasing the existing traffic counts by an ambient growth rate, then adding the traffic that will be generated by specific development projects in the harbor area. The annual growth rates that were applied are one percent per year on Terminal Island, two percent per year in the Wilmington area north of the Cerritos Channel, and five percent per year for the north-south through movements on Alameda Street north of Henry Ford Avenue and on Henry Ford Avenue south of Alameda Street. The projects included in the cumulative analysis, which are projects that would add a quantifiable volume of traffic to one or more of the study area intersections, are the Bannings Landing, West Basin, and Evergreen projects in the Port of Los Angeles and the Pier A marine terminal, the Naval Station reuse, the Naval shipyard reuse, the Navy Mole reuse, the Queensway Bay Master Plan, the Pier S terminal, and the California United Terminal expansion project in the Port of Long Beach. Although it is unlikely that all of these projects would be complete and fully operational by 2001, they have all been included in the projection of future baseline traffic volumes so that the cumulative effects of the multiple developments could be addressed. There are other projects proposed in the harbor area in addition to those listed above, such as lease renewals, site cleanups, and roadway improvements; however, these projects would contribute negligible volumes of additional traffic to the roadway network.

The volume of traffic (trucks and automobiles/light-duty vehicles) expected to be generated by the proposed Pier 400 container terminal was determined in order to estimate the impacts of the project on the study area roadways and intersections. It has been assumed that 50 percent of the containers passing through the terminal would involve rail transport. These containers would be transferred between the ships and the trains via the on-site railyard and would not, therefore, require a truck trip to or from the terminal. The other 50 percent would be transported by truck between the marine terminal and local Southern California origins/destinations (warehouses, trucking terminals, manufacturing facilities, etc.). It was assumed that the on-site railyard would be used exclusively for containers passing through Pier 400 and that the railyard would have sufficient capacity to accommodate 50 percent of the Pier 400 throughput; i.e., all of the containers involving the rail mode. In addition to the project-generated truck traffic, the Pier 400 container terminal and railyard would generate a number of light-duty vehicle trips (automobiles) associated primarily with the arrival and departure of employees. Operational traffic impacts would be identical for both railway alignment alternatives.

The estimated volumes of project-generated traffic are shown on Table 3.2-7 for the morning peak hour, the afternoon peak hour, and throughout an average weekday. The table shows the number of truck trips, automobile trips, total trips, and total passenger car equivalents (PCEs), with one truck being equivalent to 1.68 automobiles in terms of utilized roadway capacity. The 1.68 PCE factor, which was developed for the Terminal Island Transportation Study (POLB and POLA, 1997), reflects the proportional mix of truck traffic generated by marine terminals. It is based on an average mix of 32 percent bobtails with a PCE of 1.1, 7 percent chassis trailers with a PCE of 1.5, and 61 percent container trailers with a PCE of 2.0.

The traffic volumes shown on Table 3.2-7 are based on the following operational assumptions for the Pier 400 container terminal and on-site railyard.

- The throughput capacity for Pier 400 would be 943,346 TEUs (20-foot equivalent units) per year for Phase 1A and 1,057,022 TEUs per year for Phase 2A for a total combined throughput of 2,000,424 TEUs per year.
- 50 percent of the containers passing through Pier 400 would involve rail transport and 50 percent would be transported by truck (local truck trips).
- The average ratio between TEUs and number of container boxes is 1.7 TEUs per container.

- The project would generate 1.63 truck trips per container (for the containers with a local off-site origin or destination).
- There would be 260 working days per year at the container terminal.
- Ten percent of the daily truck trips would occur during the a.m. and p.m. peak hours (i.e., the peak hours for traffic on the study area street network).
- The directional split between inbound and outbound truck trips would be 60 percent in/40 percent out during the morning peak hour and 40 percent in/60 percent out during the afternoon peak hour.
- Each phase of the project would have an average of 170 daytime workers and 105 workers during the evening shift, including the container terminal and the railyard, for a combined total of 340 daytime workers and 210 evening workers for Phases 1A and 2A. There would be two main shifts per day, with only a minor number of employees at the site at night.

Table 3.2-7 Project Generated Traffic - Proposed Project

	Generated Traffic Volume				
	A.M. Peak Hour		P.M. Peak Hour		Average Daily
Scenario	In	Out	In	Out	Traffic
Phase 1A					
Autos	170	15	105	85	600
Trucks	105	70	70	105	1,750
Total Vehicles	275	85	175	190	2,350
Total PCEs	346	133	223	261	3,540
Phase 2A					
Autos	170	15	105	85	600
Trucks		115	80	80	115
1,950					
Total Vehicles	285	95	185	200	2,550
Total PCEs	363	149	239	278	3,876
Phases 1A & 2A					
Autos	340	30	210	170	1,200
Trucks	220	150	150	220	3,700
Total Vehicles	560	180	360	390	4,900
Total PCEs	710	282	462	540	7,416

Table 3.2-7 indicates that Phase 1A would generate 275 inbound and 85 outbound vehicle trips during the morning peak hour, 175 inbound and 190 outbound trips during the afternoon peak hour, and 2,350 trips per day on an average day of activity.

The project-generated traffic was geographically distributed onto the roadway network based on the existing travel patterns for trucks and automobiles that have origins or destinations on Terminal Island. Data developed from previous studies indicate that the distribution pattern is summarized in Table 3.2-8.

Table 3.2-8 Project Generated Traffic Distribution - Proposed Project

	Truck	Autos
Vincent Thomas Bridge	15 %	25 %
Commodore Heim Bridge	65 %	30 %
Gerald Desmond Bridge	20 %	45 %

To quantify the traffic impacts of Phase 1A, the volume of project traffic at each study area intersection and at each critical freeway link was determined for the morning and afternoon peak hours (see Figure 3.2-2). The traffic impact analysis was then conducted by calculating the levels of service for the scenarios with and without the project for the target year of 2001.

The projects impacts at the study area intersections are summarized on Table 3.2-9, which shows the without project and with project scenarios as well as the incremental increase in the V/C ratios caused by the project. At the intersection of Seaside Avenue and Navy Way, it has been assumed that a ramp will have been constructed to accommodate the westbound-to-southbound left turns for traffic destined for Pier 300 and other locations on the southwest part of Terminal Island. This ramp will eliminate most of the westbound left turns from the Navy/Seaside intersection and reduce the traffic volume at the intersection of Navy Way at Terminal Way.

Table 3.2-9 Project Impacts on Intersection Levels of Service - Phase 1A

	V/C Ratio and Level of Service			
Intersection	Existing Conditions	2001 Without Project	2001 With Project	Project Impact
1 - Seaside Avenue @ Navy Way				
A.M. Peak Hour	0.514 A	0.711 C	0.815 D	0.104*
P.M. Peak Hour	0.538 A	0.763 C	0.798 C	0.035
2 - Ocean Blvd. @ T.I. Freeway (LB)				
A.M. Peak Hour	0.874 D	1.123 F	1.174 F	0.051*
P.M. Peak Hour	0.838 D	0.852 D	0.915 E	0.063*
3 - Henry Ford Ave. @ T.I. Freeway Ramps/Pier A Access Road				
A.M. Peak Hour	0.520 A	0.423 A	0.439 A	0.016
P.M. Peak Hour	0.351 A	0.479 A	0.492 A	0.013
4 - Henry Ford Ave. @ Anaheim St.				
A.M Peak Hour	0.538 A	0.568 A	0.568 A	0.000
P.M. Peak Hour	0.721 C	0.641 B	0.653 B	0.012
5 - Alameda Street @ Anaheim Street				
A.M. Peak Hour	0.481 A	0.578 A	0.580 A	0.002
P.M. Peak Hour	0.505 A	0.561 A	0.562 A	0.001
6 - Alameda St. @ Pacific Coast Hwy				
A.M. Peak Hour	0.677 B	0.635 B	0.645 B	0.010
P.M. Peak Hour	0.698 B	0.740 C	0.752 C	0.012
7 - Navy Way @ Terminal Way				
A.M. Peak Hour	0.116 A	0.256 A	0.370 A	0.114
P.M Peak Hour	0.264 A	0.515 A	0.602 A	0.087

* Indicates Significant Impact

Table 3.2-9 indicates that Phase 1A of the Pier 400 project would have a significant impact at the Seaside Avenue/Navy Way and Ocean Boulevard/T.I. Freeway, intersections according to the significance criteria cited previously. No additional physical improvements are necessary, however, because the Seaside Avenue/Navy Way intersection is projected to operate at an acceptable level of service, and because a diamond interchange has been approved and funded for Ocean Boulevard at the Terminal Island Freeway and is currently being designed by the Port of Long Beach and Caltrans.

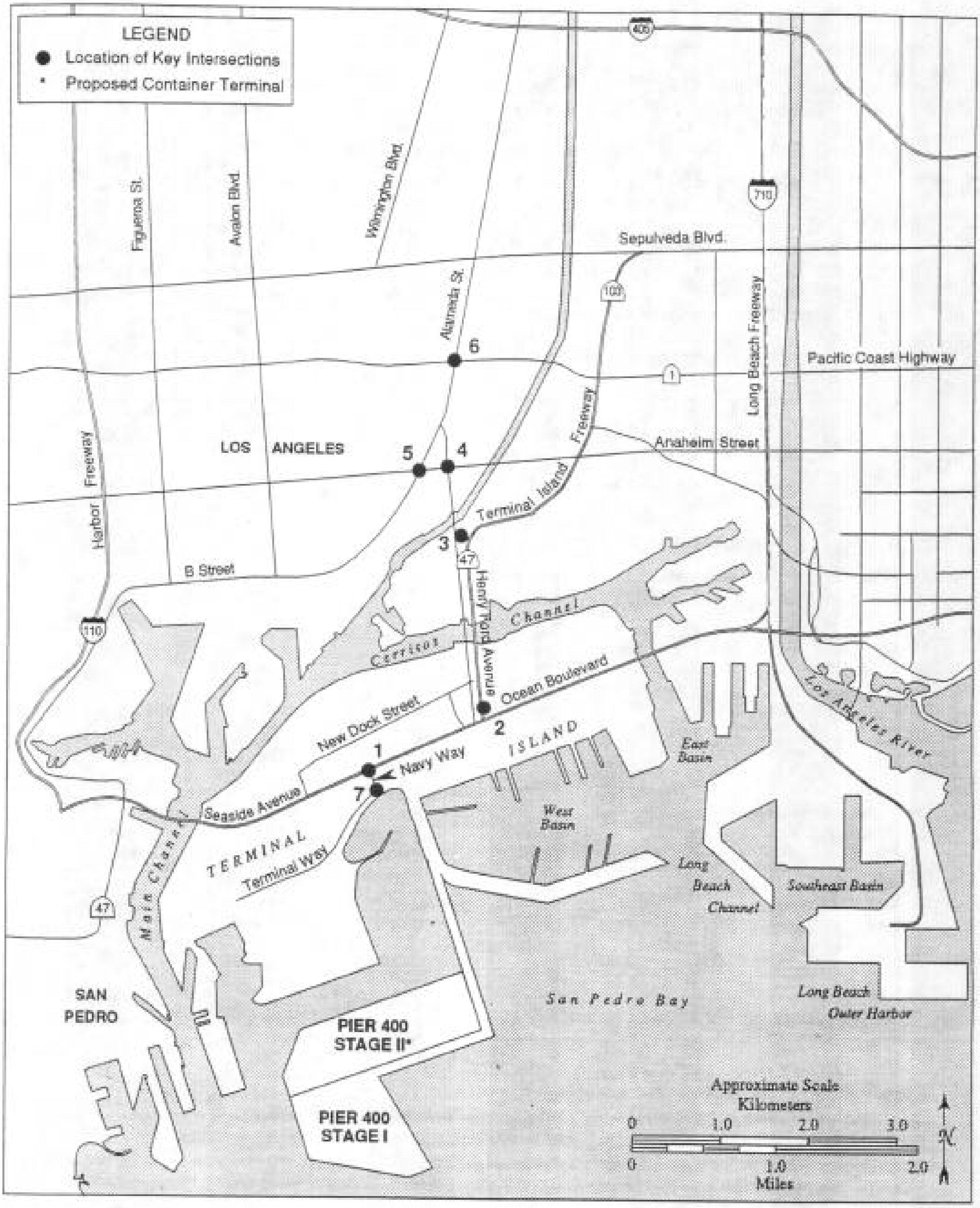


Figure 3.2-2 Key Intersections

The project's impacts on the three study area freeways have been evaluated, as summarized on Table 3.2-10. The peak hour traffic volume, demand/capacity ratio, and level of service are shown for the without project and with project scenarios. The peak hour represents the heaviest one-hour period of traffic flow measured at each location. The analysis indicates that the Phase 1A project would not have a significant impact at any of the freeway locations according to the guidelines of the CMP program.

Table 3.2-10 Project Impacts on Freeway Segment Levels of Service - Phase 1A

		A.M. Peak Hour			P.M. Peak Hour		
Freeway Segment	Capacity	Demand	D/C	LOS	Demand	D/C	LOS
I-110 south of C Street							
Northbound - w/o project	8,000	4,953	0.619	C	3,857	0.482	B
- w/ project	8,000	4,966	0.621	C	3,890	0.486	B
Southbound - w/o project	8,000	4,023	0.503	B	5,123	0.640	C
- w/ project	8,000	4,073	0.509	B	5,154	0.644	C
I-710 at Willow Street							
Northbound - w/o project	6,000	6,912	1.152	F(0)	8,344	1.391	F(2)
- w/ project	6,000	6,932	1.155	F(0)	8,399	1.400	F(2)
Southbound - w/o project	6,000	8,509	1.418	F(2)	6,789	1.132	F(0)
- w/ project	6,000	8,598	1.433	F(2)	6,845	1.141	F(0)
Terminal Island Freeway							
Northbound - w/o project	6,000	1,037	0.173	A	2,760	0.460	B
- w/ project	6,000	1,073	0.178	A	2,829	0.470	B
Southbound - w/o project	6,000	2,644	0.441	B	1,288	0.215	A
- w/ project	6,000	2,734	0.455	B	1,346	0.224	A

* Indicates significant impact.

Rail

Operation of the Phase 1A portion of the proposed container terminal is expected to add, at most, 2 round trip train movements per day. Given the ongoing upgrades and improvements to the regional rail transportation system this is not expected to result in a significant impact.

Phase 2A

Roadway

The methodology for the Phase 2A traffic impact analysis was to forecast the baseline traffic volumes for the target year of 2003, then conduct a before-and-after analysis of traffic conditions for the without project and with project scenarios. To be consistent with the requirements of the California Environmental Quality Act (CEQA), the Phase 2A impact analysis defines the project as the total Pier 400 development (Phases 1A and 2A combined). Project-generated traffic for the Phase 2A traffic impact analysis, therefore, is the sum of the Phase 1A and Phase 2A development scenarios.

The future baseline (without project) traffic volumes for the 2003 target year were projected by increasing the 2001 baseline traffic volumes by a factor of five percent, which represents ambient growth plus any other development projects that may occur in addition to those considered in detail for the year 2001 analysis. Operational traffic impacts would be identical for both railway alignment alternatives.

The estimated volumes of project-generated traffic for Phase 2A are shown on Table 3.2-7 for the morning peak hour, the afternoon peak hour, and throughout an average weekday. The table shows the number of truck trips, automobile trips, total trips, and total passenger car equivalents (PCEs). The operational assumptions and traffic distribution percentages outlined in the Phase 1A analysis section would also be applicable to Phase 2A.

Table 3.2-7 indicates that Phases 1A and 2A combined would generate 560 inbound and 180 outbound vehicle trips during the morning peak hour, 360 inbound and 390 outbound trips during the afternoon peak hour, and 4,900 trips per day on an average day of activity.

To quantify the traffic impacts of Phase 2A, the volume of project traffic at each study area intersection and at each critical freeway link was determined for the morning and afternoon peak hours. The traffic impact analysis was then conducted by calculating the levels of service for the scenarios with and without the project for the target year of 2003. Operational traffic impacts would be identical for both railway alignment alternatives.

The project's impacts at the study area intersections are summarized on Table 3.2-11, which shows the without project and with project scenarios as well as the incremental increase in the V/C ratios caused by the total project (Phases 1A and 2A combined).

Table 3.2-11 Project Impacts on Intersection Levels of Service - Phases 1A & 2A

	V/C Ratio and Level of Service			
Intersection	Existing Conditions Project	2003 Without Project	2003 With	Project Impact
1 - Seaside Avenue @ Navy Way				
A.M. Peak Hour	0.514 A	0.747 C	0.763 C	0.016
P.M. Peak Hour	0.538 A	0.801 D	0.835 D	0.034*
2 - Ocean Blvd. @ T.I. Freeway (LB)				
A.M. Peak Hour	0.874 D	0.564 A	0.564 A	0.000
P.M. Peak Hour	0.838 D	0.438 A	0.529 A	0.091
3 - Henry Ford Ave. @ T.I. Freeway Ramps/Pier A Access Road				
A.M. Peak Hour	0.520 A	0.444 A	0.478 A	0.034
P.M. Peak Hour	0.351 A	0.503 A	0.532 A	0.029
4 - Henry Ford Ave. @ Anaheim St.				
A.M Peak Hour	0.538 A	0.596 A	0.596 A	0.000
P.M. Peak Hour	0.721 C	0.672 B	0.700 B	0.028
5 - Alameda Street @ Anaheim Street				
A.M. Peak Hour	0.481 A	0.607 B	0.610 B	0.003
P.M. Peak Hour	0.505 A	0.590 A	0.592 A	0.002
6 - Alameda St. @ Pacific Coast Hwy				
A.M. Peak Hour	0.677 B	0.668 B	0.688 B	0.020
P.M. Peak Hour	0.698 B	0.778 C	0.800 C	0.022
7 - Navy Way @ Terminal Way				
A.M. Peak Hour	0.116 A	0.269 A	0.363 A	0.094
P.M Peak Hour	0.261 A	0.541 A	0.721 C	0.180*

* Indicates Significant Impact

At the intersection of Seaside Avenue and Navy Way, it has been assumed that the westbound-to-southbound ramp discussed in Phase 1A will have been modified to also provide access to Pier 400 via a grade separation at Terminal Way for the inbound Pier 400 access road. This improvement affects the Navy/Seaside intersection as well as the intersection of Navy Way at Terminal Way. The analysis also assumes that a diamond interchange will have been completed at the intersection of Ocean Boulevard and the Terminal Island Freeway. This project has been approved and funded and is currently being designed by the Port of Long Beach and Caltrans.

Table 3.2-11 indicates that Phase 2A of the Pier 400 project would have a significant impact at Seaside Avenue/Navy Way and at Navy Way/Terminal Way. Although these intersections would be significantly impacted by definition, no additional physical improvements are necessary because they are projected to operate at acceptable levels of service (LOS C and D for the Seaside Avenue/Navy Way intersections and LOS A and C for the Navy Way/Terminal Way intersection).

The project's Phase 2A impacts on the three study area freeways have been evaluated, as summarized on Table 3.2-12. The peak hour traffic volume, demand/capacity ratio, and level of service are shown for the without project and with project scenarios. The analysis indicates that the Phase 2A project would have a significant impact on the Long Beach (I-710) Freeway in the southbound direction during the morning peak hour.

Table 3.2-12 Project Impacts on Freeway Segment Levels of Service - Phases 1A & 2A

		A.M. Peak Hour			P.M. Peak Hour		
Freeway Segment	Capacity	Demand	D/C	LOS	Demand	D/C	LOS
I-110 south of C Street							
Northbound - w/o project	8,000	5,201	0.650	C	4,050	0.506	B
- w/ project	8,000	5,229	0.654	C	4,117	0.515	B
Southbound - w/o project	8,000	4,224	0.528	B	5,379	0.672	C
- w/ project	8,000	4,325	0.541	B	5,443	0.680	C
I-710 at Willow Street							
Northbound - w/o project	6,000	7,258	1.210	F(0)	8,761	1.460	F(3)
- w/ project	6,000	7,300	1.217	F(0)	8,873	1.479	F(3)
Southbound - w/o project	6,000	8,934	1.489	F(3)	7,128	1.188	F(0)
- w/ project	6,000	9,114	1.518	F(3)*	7,242	1.207	F(0)
Terminal Island Freeway							
Northbound - w/o project	6,000	1,089	0.181	A	2,898	0.483	B
- w/ project	6,000	1,164	0.194	A	3,040	0.507	B
Southbound - w/o project	6,000	2,776	0.463	B	1,352	0.225	A
- w/ project	6,000	2,960	0.493	B	1,473	0.246	A

* Indicates significant impact.

It should be noted that the Phase 2A traffic impact analysis is applicable to either the five- or six-berth design scenario because the average daily throughput levels and the resulting traffic volumes would be the same for each scenario.

Rail

Operation of the Phase 2A portion of the proposed container terminal is expected to add, at most, 2 round trip train movements per day for a cumulative project maximum of four round trip train movements per day. Given the ongoing upgrades and improvements to the regional rail transportation system this is not expected to result in a significant impact.

3.2.5 IMPACTS OF THE ALTERNATIVE DESIGN

3.2.5.1 Construction

Phase 1B

There would be temporary impacts on the study area roadway system during construction of the proposed container terminal and access facilities, as the construction activities would generate vehicular traffic associated with construction workers' vehicles and trucks delivering equipment and material to the site. This site-generated traffic would result in increased traffic volumes on the study area roadways for the duration of the construction period, which is expected to be two to three years. Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in comparable impacts to the study area roadway system. The construction activities are estimated to generate up to 500 truck trips and 6,000 automobile trips per day, based on an assumed work force of 3,200 people and 250 truck deliveries during peak construction periods, which would occur in the year 1999. The volume of construction traffic would initially be about 400 trips per day in 1998/early 1999, would increase to peak levels in late 1999 and would then decline through the year 2001. There would also be a localized impact on the roadways in the immediate project vicinity associated with the construction of new access roads and ramps. These construction activities may result in temporary lane blockages and disruption to traffic flow at locations where the construction zone physically interfaces with the public right-of-way. The construction contractor would be required to obtain encroachment permits and implement a construction area traffic control plan to ensure that traffic flow is adequately and safely maintained at all times through the construction zone. Neither the generated traffic volumes nor the physical roadway impacts during construction is expected to result in a significant traffic impact.

Phase 2B

Phase 2B construction traffic is estimated to have similar effects to Phase 1B concluding in the year 2002.

3.2.5.2 Operation

Phase 1B

Roadway

The traffic impacts of the proposed container terminal were evaluated by quantifying the projected conditions on the affected roadways and intersections in the study area for the scenarios with and without the project. The future baseline traffic conditions were developed for the Phase 1B target year of 2001, then the project-generated traffic was added to the baseline scenario for a before-and-after analysis. The methodology for the traffic impact analysis, in general, was to forecast the baseline traffic conditions for the year 2001 considering the cumulative effects of regional growth and other proposed development in the area, then add the project-generated traffic to the baseline traffic volumes and formulate a comparison of traffic conditions with and without the project.

The future baseline (without project) traffic volumes for the 2001 target year were projected by increasing the existing traffic counts by an ambient growth rate, then adding the traffic that will be generated by specific development projects in the harbor area. The annual growth rates that were applied are 1 percent per year on Terminal Island, 2 percent per year in the Wilmington area north of the Cerritos Channel, and 5 percent per year for the north-south through movements on Alameda Street north of Henry Ford Avenue and on Henry Ford Avenue south of Alameda Street. The projects included in the cumulative analysis, which are projects that would add a quantifiable volume of traffic to one or more of the study area intersections, are the Bannings Landing, West Basin, and Evergreen projects in the Port of Los Angeles and the Pier A marine terminal, the Naval Station reuse, the Naval shipyard reuse, the Navy Mole reuse, the Queensway Bay Master Plan, the Pier S terminal, and the California United Terminal expansion projects in the Port of Long Beach. Although it is unlikely that all of these projects would be complete and fully operational by 2001, they have all been included in the projection of future baseline traffic volumes so that the cumulative effects of the multiple developments could be addressed. There are other projects proposed in the harbor area in addition to those listed above, such as lease renewals, site cleanups, and roadway improvements; however, these projects would contribute negligible volumes of additional traffic to the roadway network.

The volume of traffic (trucks and automobiles/light-duty vehicles) expected to be generated by the proposed Pier 400 container terminal was determined in order to estimate the impacts of the project on the study area roadways and intersections. It has been assumed that 50 percent of the containers passing through the terminal would involve rail transport. These containers would be transferred between the ships and the trains via the on-site railyard and would not, therefore, require a truck trip to or from the terminal. The other 50 percent would be transported by truck between the marine terminal and local Southern California origins/destinations (warehouses, trucking terminals, manufacturing facilities, etc.). It was assumed that the on-site railyard would be used exclusively for containers passing through Pier 400 and that the railyard would have sufficient capacity to accommodate 50 percent of the Pier 400 throughput; i.e., all of the containers involving the rail mode. In addition to the project-generated truck traffic, the Pier 400 container terminal and railyard would generate a number of light-duty vehicle trips (automobiles) associated primarily with the arrival and departure of employees. Operational traffic impacts would be identical for both railway alignment alternatives.

The estimated volumes of project-generated traffic are shown on Table 3.2-13 for the morning peak hour, the afternoon peak hour, and throughout an average weekday. The table shows the number of truck trips, automobile trips, total trips, and total passenger car equivalents (PCEs), with one truck being equivalent to 1.68 automobiles in terms of utilized roadway capacity. The 1.68 PCE factor, which was developed for the Terminal Island Transportation Study (POLB and POLA, 1997), reflects the proportional mix of truck traffic generated by marine terminals. It is based on an average mix of 32 percent bobtails with a PCE of 1.1, 7 percent chassis trailers with a PCE of 1.5, and 61 percent container trailers with a PCE of 2.0.

Table 3.2-13 Project Generated Traffic - Alternative Design

	Generated Traffic Volume				
	A.M. Peak Hour		P.M. Peak Hour		Average Daily
Scenario	In	Out	In	Out	Traffic
Phase 1B					
Autos	340	30	210	170	1,200
Trucks	190	125	125	190	3,130
Total Vehicles	530	155	335	360	4,330
Total PCEs	659	240	420	489	6,460
Phase 2B					
Autos	170	15	105	85	600
Trucks	95	60	60	95	1,570
Total Vehicles	265	75	165	180	2,170
Total PCEs	330	116	206	245	3,240
Phases 1B & 2B					
Autos	520	45	315	255	1,800
Trucks	285	185	185	285	4,700
Total Vehicles	795	230	500	540	6,500
Total PCEs	989	356	626	734	9,700

The traffic volumes shown on Table 3.2-13 are based on the following operational assumptions for the Pier 400 container terminal and on-site railyard.

- The Phase 1B annual cargo (container) throughput would be 1,700,000 TEUs, which represents approximately 1,000,000 containers (based on 1.7 TEUs per container). The Phase 2B annual cargo (container) throughput would be 850,000 TEUs which represents approximately 500,000 containers. Combined Phase 1B and 2B annual cargo (container) throughput would be 2,550,000 TEUs which represents approximately 1,500,000 containers.
- 50 percent of the containers passing through Pier 400 would involve rail transport and 50 percent would be transported by truck (local truck trips).
- The average ratio between TEUs and number of container boxes is 1.7 TEUs per container.
- The project would generate 1.63 truck trips per container (for the containers with a local off-site origin or destination).
- There would be 260 working days per year at the container terminal.
- Ten percent of the daily truck trips would occur during the a.m. and p.m. peak hours (i.e., the peak hours for traffic on the study area street network).
- The directional split between inbound and outbound truck trips would be 60 percent in/40 percent out during the morning peak hour and 40 percent in/60 percent out during the afternoon peak hour.
- Phase 1B would have an average of 340 daytime workers and 210 workers during the evening shift, including the container terminal and the railyard. Phase 2B would have an average of 170 daytime workers and 105 evening workers, for a combined total of 510 daytime workers and 315 evening workers for Phases 1B and 2B. There would be two main shifts per day, with only a minor number of employees at the site at night.

Table 3.2-13 indicates that Phase 1B would generate 530 inbound and 155 outbound vehicle trips during the morning peak hour, 335 inbound and 360 outbound trips during the afternoon peak hour, and 4,330 trips per day on an average day of activity.

The project-generated traffic was geographically distributed onto the roadway network based on the existing travel patterns for trucks and automobiles that have origins or destinations on Terminal Island. Data developed from previous studies indicate that the distribution pattern is as summarized in Table 3.2-14.

Table 3.2-14 Project Generated Traffic Distribution - Alternative Design

	Truck	Autos
Vincent Thomas Bridge	15 %	25 %
Commodore Heim Bridge	65 %	30 %
Gerald Desmond Bridge	20 %	45 %

To quantify the traffic impacts of Phase 1B, the volume of project traffic at each study area intersection and at each critical freeway link was determined for the morning and afternoon peak hours (see Figure 3.2-2). The traffic impact analysis was then conducted by calculating the levels of service for the scenarios with and without the project for the target year of 2001. Operational traffic impacts would be identical for both railway alignment alternatives.

The project's impacts at the study area intersections are summarized on Table 3.2-15, which shows the without project and with project scenarios as well as the incremental increase in the V/C ratios caused by the project. At the intersection of Seaside Avenue and Navy Way, it has been assumed that a ramp will have been constructed to accommodate the westbound-to-southbound left turns for traffic destined for Pier 300 and other locations on the southwest part of Terminal Island. This ramp will eliminate most of the existing westbound left turns from the Navy/Seaside intersection and reduce the southbound traffic volume at the intersection of Navy Way at Terminal Way (for the without project scenario) as westbound traffic on Navy Way destined for Pier 300 and southwest Terminal Island would no longer pass through these intersections. New traffic destined for the Navy Mole and Pier 400 would, however, pass through these intersections at such time that these projects are implemented.

Table 3.2-15 indicates that Phase 1B of the Pier 400 project would have a significant impact at the Ocean Boulevard/T.I. Freeway intersection according to the significance criteria cited previously. No additional physical improvements are necessary, however, because a diamond interchange has been approved and funded for Ocean Boulevard at the Terminal Island Freeway and is currently being designed by the Port of Long Beach and Caltrans.

The project's impacts on the three study area freeways have been evaluated, as summarized on Table 3.2-16. The peak hour traffic volume, demand/capacity ratio, and level of service are shown for the without project and with project scenarios. The peak hour represents the heaviest one-hour period of traffic flow measured at each location. The analysis indicates that the Phase 1B project would have a significant impact on the Long Beach (I-710) freeway in the southbound direction during the morning peak hour according to the guidelines of the CMP program.

Table 3.2-15 Project Impacts on Intersection Levels of Service - Phase 1B

	V/C Ratio and Level of Service			
Intersection	Existing Conditions	2001 Without Project	2001 With Project	Project Impact
1 - Seaside Avenue @ Navy W				
A.M. Peak Hour	0.514 A	0.711 C	0.725 C	0.014
P.M. Peak Hour	0.538 A	0.763 C	0.795 C	0.032
2 - Ocean Blvd. @ T.I. Freeway (LB)				
A.M. Peak Hour	0.874 D	1.123 F	1.218 F	0.095*
P.M. Peak Hour	0.838 D	0.852 D	1.010 F	0.158*
3 - Henry Ford Ave. @ T.I. Freeway Ramps/Pier A Access Road				
A.M. Peak Hour	0.520 A	0.423 A	0.453 A	0.030
P.M. Peak Hour	0.351 A	0.479 A	0.505 A	0.026
4 - Henry Ford Ave. @ Anaheim St.				
A.M Peak Hour	0.538 A	0.568 A	0.568 A	0.000
P.M. Peak Hour	0.721 C	0.641 B	0.665 B	0.024
5 - Alameda Street @ Anaheim Street				
A.M. Peak Hour	0.481 A	0.578 A	0.581 A	0.003
P.M. Peak Hour	0.505 A	0.561 A	0.563 A	0.002
6 - Alameda St. @ Pacific Coast Hwy				
A.M. Peak Hour	0.677 B	0.635 B	0.652 B	0.017
P.M. Peak Hour	0.698 B	0.740 C	0.760 C	0.020
7 - Navy Way @ Terminal Way				
A.M. Peak Hour	0.116 A	0.256 A	0.336 A	0.080
P.M Peak Hour	0.264 A	0.515 A	0.678 B	0.163

* Indicates Significant Impact

Table 3.2-16 Project Impacts on Freeway Segment Levels of Service - Phase 1B

		A.M. Peak Hour			P.M. Peak Hour		
Freeway Segment	Capacity	Demand	D/C	LOS	Demand	D/C	LOS
I-110 south of C Street							
Northbound - w/o project	8,000	4,953	0.619	C	3,857	0.482	B
- w/ project	8,000	4,978	0.622	C	3,920	0.490	B
Southbound - w/o project	8,000	4,023	0.503	B	5,123	0.640	C
- w/ project	8,000	4,120	0.515	B	5,184	0.648	C
I-710 at Willow Street							
Northbound - w/o project	6,000	6,912	1.152	F(0)	8,344	1.391	F(2)
- w/ project	6,000	6,949	1.158	F(0)	8,450	1.408	F(2)
Southbound - w/o project	6,000	8,509	1.418	F(2)	6,789	1.132	F(0)
- w/ project	6,000	8,683	1.437	F(2)	6,898	1.150	F(0)
Terminal Island Freeway							
Northbound - w/o project	6,000	1,037	0.173	A	2,760	0.460	B
- w/ project	6,000	1,100	0.183	A	2,880	0.481	B
Southbound - w/o project	6,000	2,644	0.441	B	1,288	0.215	A
- w/ project	6,000	2,814	0.469	B	1,397	0.233	A

* Indicates significant impact.

Rail

Operation of the Phase 1B portion of the proposed container terminal is expected to add, at most, 4 round trip train movements per day. Given the ongoing upgrades and improvements to the regional rail transportation system this is not expected to result in a significant impact.

Phase 2B

The methodology for the Phase 2B traffic impact analysis was to forecast the baseline traffic volumes for the target year of 2003, then conduct a before-and-after analysis of traffic conditions for the without project and with project scenarios. To be consistent with the requirements of the California Environmental Quality Act (CEQA), the Phase 2B impact analysis defines the project as the total Pier 400 development (Phases 1B and 2B combined). Project-generated traffic for the Phase 2B traffic impact analysis, therefore, is the sum of the Phase 1B and Phase 2B development scenarios.The future baseline (without project) traffic volumes for the 2003 target year were projected by increasing the 2001 baseline traffic volumes by a factor of five percent, which represents ambient growth plus any other development projects that may occur in addition to those considered in detail for the year 2001 analysis. Operational traffic impacts would be identical for both railway alignment alternatives.

The estimated volumes of project-generated traffic for Phase 2B are shown on Table 3.2-17 for the morning peak hour, the afternoon peak hour, and throughout an average weekday. The table shows the number of truck trips, automobile trips, total trips, and total passenger car equivalents (PCEs). The operational assumptions and traffic distribution percentages outlined in the Phase 1B analysis section would also be applicable to Phase 2B. Operational traffic impacts would be identical for both railway alignment alternatives.

Table 3.2-17 indicates that Phases 1B and 2B combined would generate 795 inbound and 230 outbound vehicle trips during the morning peak hour, 500 inbound and 540 outbound trips during the afternoon peak hour, and 6,500 trips per day on an average day of activity.

To quantify the traffic impacts of Phase 2B, the volume of project traffic at each study area intersection and at each critical freeway link was determined for the morning and afternoon peak hours. The traffic impact analysis was then conducted by calculating the levels of service for the scenarios with and without the project for the target year of 2003.

Table 3.2-17 Project Impacts on Intersection Levels of Service - Phases 1B & 2B

Intersection	Existing Conditions	2003 Without Project	2003 With Project	Project Impact
	V/C Ratio and Level of Service			
1 - Seaside Avenue @ Navy Way				
A.M. Peak Hour	0.514 A	0.747 C	0.768 C	0.021
P.M. Peak Hour	0.538 A	0.801 D	0.848 D	0.047*
2 - Ocean Blvd. @ T.I. Freeway (LB)				
A.M. Peak Hour	0.874 D	0.564 A	0.564 A	0.000
P.M. Peak Hour	0.838 D	0.438 A	0.559 A	0.121
3 - Henry Ford Ave. @ T.I. Freeway Ramps/Pier A Access Road				
A.M. Peak Hour	0.520 A	0.444 A	0.478 A	0.034
P.M. Peak Hour	0.351 A	0.503 A	0.542 A	0.039
4 - Henry Ford Ave. @ Anaheim St.				
A.M Peak Hour	0.538 A	0.596 A	0.596 A	0.000
P.M. Peak Hour	0.721 C	0.672 B	0.708 B	0.036
5 - Alameda Street @ Anaheim Street				
A.M. Peak Hour	0.481 A	0.607 B	0.612 B	0.005
P.M. Peak Hour	0.505 A	0.590 A	0.593 A	0.003
6 - Alameda St. @ Pacific Coast Hwy				
A.M. Peak Hour	0.677 B	0.668 B	0.692 B	0.0204
P.M. Peak Hour	0.698 B	0.778 D	0.806 D	0.028*
7 - Navy Way @ Terminal Way				
A.M. Peak Hour	0.116 A	0.269 A	0.506 A	0.094
P.M Peak Hour	0.261 A	0.541 B	0.785 D	0.244*

* Indicates Significant Impact

The project's impacts at the study area intersections are summarized on Table 3.2-17, which shows the without project and with project scenarios as well as the incremental increase in the V/C ratios caused by the total project (Phases 1B and 2B combined).

At the intersection of Seaside Avenue and Navy Way, it has been assumed that the westbound-to-southbound ramp discussed in Phase 1B will have been modified to also provide access to Pier 400 via a grade separation at Terminal Way for the inbound Pier 400 access road. This improvement affects the Navy/Seaside intersection as well as the intersection of Navy Way at Terminal Way. The analysis also assumes that a diamond interchange will have been completed at the intersection of Ocean Boulevard and the Terminal Island Freeway. This project has been approved and funded and is currently being designed by the Port of Long Beach and Caltrans.

Table 3.2-17 indicates that Phase 2B of the Pier 400 project would have a significant impact at Seaside Avenue/Navy Way, at Alameda Street/Pacific Coast Highway, and at Navy Way/Terminal Way. Although these intersections would be significantly impacted by definition, no additional physical improvements are necessary because they are projected to operate at acceptable levels of service (LOS C and D for the Seaside Avenue/Navy Way intersection, LOS B and D for the Alameda Street/Pacific Coast Highway intersection, and LOS A and D for the Navy Way/ Terminal Way intersection). In addition, the Alameda/Pacific Coast Highway will be grade-separated as part of the ongoing Alameda Corridor project.

The project's Phase 2B impacts on the three study area freeways have been evaluated, as summarized on Table 3.2-18. The peak hour traffic volume, demand/capacity ratio, and level of service are shown for the without project and with project scenarios. The analysis indicates that the Phase 2B project would have a significant impact on the Long Beach (I-710) Freeway in the southbound direction during the morning peak hour, and in both directions during the afternoon peak hour.

Table 3.2-18 Project Impacts on Freeway Segment Levels of Service - Phases 1B & 2B

		A.M. Peak Hour			P.M. Peak Hour		
Freeway Segment	Capacity	Demand	D/C	LOS	Demand	D/C	LOS
I-110 south of C Street							
Northbound - w/o project	8,000	5,201	0.650	C	4,050	0.506	B
- w/ project	8,000	5,238	0.655	C	4,144	0.518	B
Southbound - w/o project	8,000	4,224	0.528	B	5,379	0.672	C
- w/ project	8,000	4,369	0.546	B	5,470	0.684	C
I-710 at Willow Street							
Northbound - w/o project	6,000	7,258	1.210	F(0)	8,761	1.460	F(3)
- w/ project	6,000	7,313	1.219	F(0)	8,920	1.487	F(3)*
Southbound - w/o project	6,000	8,934	1.489	F(3)	7,128	1.188	F(0)
- w/ project	6,000	9,195	1.532	F(3)*	7,291	1.215	F(0)*
Terminal Island Freeway							
Northbound - w/o project	6,000	1,089	0.181	A	2,898	0.483	B
- w/ project	6,000	1,183	0.197	A	3,000	0.515	B
Southbound - w/o project	6,000	2,776	0.463	B	1,352	0.225	A
- w/ project	6,000	3,031	0.505	B	1,514	0.252	A

* Indicates significant impact.

Rail

Operation of the Phase 2B portion of the proposed container terminal is expected to add, at most, 2 round trip train movements per day for a cumulative project maximum of six round trip train movements per day. Given the ongoing upgrades and improvements to the regional rail transportation system this is not expected to result in a significant impact.

3.2.6 IMPACTS OF THE GAP CLOSURE ALTERNATIVE

Filling the gap as opposed to bridging the gap will not change any other aspect of the terminal's design. The design of the remainder of the Pier 400 Transportation Corridor and the Pier 400 Backlands areas will not be affected by selection of this alternative. Consequently, the only impact assessment that would be effected by selecting this alternative would be construction impacts during Phase 1, that phase during which the actual bridge or constructed fill would be built. Discussion in this section will be limited to Phase 1 construction impacts only. Please refer back to previous sections for Phase 2 construction impacts (3.1.4.1 or 3.1.5.1) and all operational impacts 3.1.4.2 or 3.1.5.2).

3.2.6.1 Proposed Project with Gap Closure

Ground transportation impacts will be reduced for the gap closure alternative. Construction equipment associated with bridge construction and bridge approach construction will be eliminated. The amount of time to complete construction on the transportation corridor will be reduced by elimination of bridge and bridge approach construction elements. The construction contractor would be required to obtain encroachment permits and implement a construction area traffic control plan to ensure that traffic flow is adequately and safely maintained at all times through the construction zone. Neither the generated traffic volumes nor the physical roadway impacts during construction is expected to result in a significant traffic impact for either terminal design alternative. Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in comparable impacts to the study area roadway system.

3.2.6.2 Alternative Design with Gap Closure

Ground transportation impacts will be reduced for the gap closure alternative. Construction equipment associated with bridge construction and bridge approach construction will be eliminated. The amount of time to complete construction on the transportation corridor will be reduced by elimination of bridge and bridge approach construction elements. The construction contractor would be required to obtain encroachment permits and implement a construction area traffic control plan to ensure that traffic flow is adequately and safely maintained at all times through the construction zone. Neither the generated traffic volumes nor the physical roadway impacts during construction is expected to result in a significant traffic impact for either terminal design alternative. Construction of the two railway alignment alternatives would use similar equipment over the same duration and would result in comparable impacts to the study area roadway system.

3.2.7 MITIGATION

3.2.7.1 Proposed Project

Although the analysis indicates that the project would have a significant impact at the intersections of Seaside Avenue at Navy Way and Navy Way at Terminal Way (based on the significance criteria), no mitigation measures are required because the intersections are projected to operate at acceptable levels of service. This conclusion is based on the assumption that a ramp will be constructed to accommodate westbound-to-southbound left turns at the Seaside/Navy intersection, and that this ramp would provide access to Pier 400 for Phase 2A via a grade separation at Terminal Way. It has also been assumed that a diamond interchange will be constructed at the Ocean Boulevard/Terminal Island Freeway intersection as this project has been approved and funded.

3.2.7.2 Alternative Design

Although the analysis indicates that the project would have a significant impact at the intersections of Seaside Avenue at Navy Way and Navy Way at Terminal Way (based on the significance criteria), no mitigation measures are required because the intersections are projected to operate at acceptable levels of service. This conclusion is based on the assumption that a ramp will be constructed to accommodate westbound-to-southbound left turns at the Seaside/Navy intersection, and that this ramp would provide access to Pier 400 via a grade separation at Terminal Way. It has also been assumed that a diamond interchange will be constructed at the Ocean Boulevard/Terminal Island Freeway intersection as this project has been approved and funded. No mitigation is proposed for the Alameda Street/Pacific Coast Highway intersection as it will be grade-separated as part of the Alameda Corridor project.

3.2.7.3 Gap Closure Alternative

The level of significance does not change when considering impacts for the Gap Closure Alternative. Therefore, the discussion concerning mitigation measures for each alternative would equally apply to the Gap Closure Alternative.

3.2.8 CUMULATIVE IMPACTS

3.2.8.1 Proposed Project

The future baseline traffic conditions were developed by considering the cumulative effects of regional growth and traffic generated by other proposed development projects in the harbor area. Project traffic was then added to the future baseline conditions to develop the cumulative with project analysis scenario. The traffic analysis is representative, therefore, of a cumulative traffic impact analysis.

3.2.8.2 Alternative Design

The future baseline traffic conditions were developed by considering the cumulative effects of regional growth and traffic generated by other proposed development projects in the harbor area. Project traffic was then added to the future baseline conditions to develop the cumulative with project analysis scenario. The traffic analysis is representative, therefore, of a cumulative traffic impact analysis.

3.2.8.3 Gap Closure Alternative

The future baseline traffic conditions were developed by considering the cumulative effects of regional growth and traffic generated by other proposed development projects in the harbor area. Project traffic was then added to the future baseline conditions to develop the cumulative with project analysis scenario. The traffic analysis is representative, therefore, of a cumulative traffic impact analysis.

3.2.9 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

3.2.9.1 Proposed Project

The Pier 400 project would result in an increase in traffic volumes on the roadways in the harbor area, which is an unavoidable adverse impact. The proposed access improvements along Navy Way and the funded improvements on Ocean Boulevard would provide acceptable levels of service at these locations, although the intersections of Seaside Avenue at Navy Way and Navy Way at Terminal Way would still be significantly impacted, by definition. The Phase 2A impact on the Long Beach Freeway would remain significant according to the Los Angeles County Congestion Management Program criteria.

3.2.9.2 Alternative Design

The Pier 400 project would result in an increase in traffic volumes on the roadways in the harbor area, which is an unavoidable adverse impact. The proposed access improvements along Navy Way and the funded improvements on Ocean Boulevard would provide acceptable levels of service at these locations, although the intersections of Seaside Avenue at Navy Way, Alameda Street at Pacific Coast Highway, and Navy Way at Terminal Way would still be significantly impacted, by definition. The impact on the Long Beach Freeway would remain significant according to the Los Angeles County Congestion Management Program criteria.

3.2.9.3 Gap Closure Alternative

Significant unavoidable adverse impacts would be the same (for operation) or less (for construction) than the impacts identified for the individual terminal design alternatives.

3.2.10 COMPARISON OF ALTERNATIVES

3.2.10.1 Construction Impacts

Construction impacts for all alternatives will be very similar. The major difference will be duration. The Proposed Project with Gap Fill will have the least impact followed by the Proposed Project, the Alternative Design with gap Fill, and the Alternative Design. Control measures to be put in place by the construction contractor will keep all impacts at an insignificant level.

3.2.10.2 Operational Impacts

See table 3.2-19 for a comparison of construction impacts between design alternatives for the study area intersections. Table 3.2-20 is a similar comparison of freeway segments.

Table 3.2-19 Project Impacts on Intersection Levels of Service

Intersection	V/C Ratio Increase and Final Level of Service Proposed Project Phase 1A & 2A	Proposed Project Phases 1A	Alternative Design Phase 1B & 2B	Alternative Design Phases 1B
1 - Seaside Avenue @ Navy Way				
A.M. Peak Hour	D 0.104*	C 0.016	C 0.014	C 0.021
P.M. Peak Hour	C 0.035	D 0.034*	C 0.032	D 0.047*
2 - Ocean Blvd. @ T.I. Freeway (LB)				
A.M. Peak Hour	F 0.051*	A 0.000	F 0.095*	A 0.000
P.M. Peak Hour	E 0.063*	A 0.091	F 0.158*	A 0.121
3 - Henry Ford Ave. @ T.I. Freeway Ramps/Pier A Access Road				
A.M. Peak Hour	A 0.016	A 0.034	A 0.030	A 0.034
P.M. Peak Hour	A 0.013	A 0.029	A 0.026	A 0.039
4 - Henry Ford Ave. @ Anaheim St.				
A.M Peak Hour	A 0.000	A 0.000	A 0.000	A 0.000
P.M. Peak Hour	B 0.012	B 0.028	B 0.024	B 0.036
5 - Alameda Street @ Anaheim Street				
A.M. Peak Hour	A 0.002	B 0.003	A 0.003	B 0.005
P.M. Peak Hour	A 0.001	A 0.002	A 0.002	A 0.003
6 - Alameda St. @ Pacific Coast Hwy				
A.M. Peak Hour	B 0.010	B 0.020	B 0.017	B 0.204
P.M. Peak Hour	C 0.012	C 0.022	C 0.020	D 0.028*
7 - Navy Way @ Terminal Way				
A.M. Peak Hour	A 0.114	A 0.094	A 0.080	A 0.094
P.M Peak Hour	A 0.087	C 0.180*	B 0.163	D 0.244*

- Indicates Significant Impact

Table 3.2-20 Project Impacts on Freeway Segment Levels of Service

	A.M. Peak Hour				P.M. Peak Hour			
	Proposed Project		Alternative Design		Proposed Project		Alternative Design	
Freeway Segment	D/C	LOS	D/C	LOS	D/C	LOS	D/C	LOS
I-110 south of C Street								
Northbound	0.654	C	0.650	C	0.515	B	0.506	B
Southbound	0.541	B	0.546	B	0.680	C	0.684	C
I-710 at Willow Street								
Northbound	1.217	F[0]	1.219	F[0]	1.479	F[3]	1.487	F[3]*
Southbound	1.518	F[3]*	1.532	F[3]*	1.207	F[0]	1.215	F[0]*
Terminal Island Freeway								
Northbound	0.194	A	0.197	A	0.507	B	0.515	B
Southbound	0.493	B	0.505	B	0.246	A	0.252	A

* Indicates significant impact.

Overall, the Proposed Project would have lower operational transportation impacts. But, that is to be expected given the smaller terminal size and throughput of the Proposed Project. Nearby intersections are more heavily impacted by the Alternative Design than are nearby freeways. Additional traffic, once absorbed onto the freeway system is much less noticeable than it is on nearby surface streets. The presence of an on-site intermodal transfer facility and the Alameda Corridor also greatly reduces ground transportation impacts.

3.2.11 MITIGATION MONITORING AND REPORTING PROGRAM

3.2.11.1 Proposed Project

A mitigation monitoring program is not required, as no mitigation measures are necessary.

3.2.11.2 Alternative Design

A mitigation monitoring program is not required, as no mitigation measures are necessary.

3.2.11.3 Gap Closure Alternative

A mitigation monitoring program is not required, as no mitigation measures are necessary.

3.2.12 IMPACTS FROM PROJECT ALTERNATIVES

3.2.12.1 Proposed Project

The following is a presentation of transportation impacts that would occur from the construction and operation of the (1) Phases 1A and 2A design operated by separate customers and (2) no project alternatives.

Separate Terminals Alternative

If Pier 400 were to be developed as two separate container terminals, the overall throughput levels would be unchanged from the levels estimated for Phases 1A and 2A combined for the proposed project. The estimated volumes of automobile and truck traffic for this alternative would likewise be the same as for the proposed project. The off-site traffic impacts and mitigation measures on the roadways and intersections in the study area would, therefore, be identical to those presented previously for the proposed project. The primary difference would be that the separate terminals would have two separate entrance/exit plazas. It would be critical that the location and design of the entry/exit gates would minimize operational and/or queuing conflicts between the two facilities.

No-Project Alternative

The No-Project Alternative would have no container throughput activity and the site would not, therefore, generate any vehicular traffic volumes. As there would be no traffic increases on the study area roadways or intersections, the traffic impacts discussed earlier for the proposed project would not occur. No mitigation measures would be required. The No-Project Alternative would also eliminate the roadway improvements that have been proposed in conjunction with the project, particularly the ramp to accommodate westbound left turns at the Navy Way/Seaside Avenue intersection. The anticipated benefits of these transportation improvements would not occur for the No-Project Alternative.

3.2.12.2 Alternative Design

The following is a presentation of transportation impacts that would occur from the no project alternative. Impacts from a another alternative (Proposed Project) are addressed above.

No-Project Alternative

The No-Project Alternative would have no container throughput activity and the site would not, therefore, generate any vehicular traffic volumes. As there would be no traffic increases on the study area roadways or intersections, the traffic impacts discussed earlier for the proposed project would not occur. No mitigation measures would be required. The No-Project Alternative would also eliminate the roadway improvements that have been proposed in conjunction with the project, particularly the ramp to accommodate westbound left turns at the Navy Way/Seaside Avenue intersection. The anticipated benefits of these transportation improvements would not occur for the No-Project Alternative.

3.3 VESSEL TRANSPORTATION

3.3.1 INTRODUCTION

Traffic impacts of the Port of Los Angeles Pier 400 Container Terminal and Transportation Corridor Project are addressed below.

3.3.1.1 Data Sources

Additional information specific for this project is contained in special studies prepared for the Los Angeles Harbor Department by Science Applications International Corporation (SAIC, 1998c & 1998d).

3.3.2 ENVIRONMENTAL SETTING

The Port of Los Angeles is located in San Pedro Bay and is protected by three breakwaters: San Pedro Breakwater; Middle Breakwater; and Long Beach Breakwater. The openings between these breakwaters, known as Angels Gate and Queens Gate, provide entry to the Port of Los Angeles and Port of Long Beach, respectively.

Vessels of many types, including fishing boats, pleasure vessels, passenger-carrying vessels, tankers, auto carriers, container vessels, dry bulk carriers, and barges, call or reside in the Port of Los Angeles. Commercial vessels follow vessel traffic lanes established by the U.S. Coast Guard (USCG) when approaching and leaving the harbor (see Figure 3.3-1). These traffic lanes meet at the Precautionary Area where incoming and outgoing traffic crosses.

A number of measures are in place in the harbor area to enhance the safety of vessel navigation. A Vessel Traffic Information Service (VTIS), operated by the Marine Exchange and USCG, has been established within the main approaches to the harbor. The VTIS is operated from the Vessel Traffic Center located in San Pedro. The VTIS provides round the clock information about commercial vessel traffic within an area extending 25 miles out to sea from Point Fermin. Covered vessels, as defined below, are required to actively participate in the VTIS. Covered vessels include:

1. Every power driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating.
2. Every commercial towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating.
3. Every vessel issued certificate to carry 50 or more passengers for hire, when engaged in trade, regardless of length of vessel, or whether under sail or power driven.

Upon entering the 25-mile outer limit, covered arriving vessels must call the Vessel Traffic Center and provide the following information:

- Vessel name/call sign
- Position
- Vessel destination
- State whether taking a pilot or being piloted by master/commanding officer
- Estimated time of arrival (ETA) at breakwater seabuoy/pilot station
- Acknowledge that speed will be reduced to 12 knots upon entry to the Precautionary Area
- Advise of any known mechanical difficulty

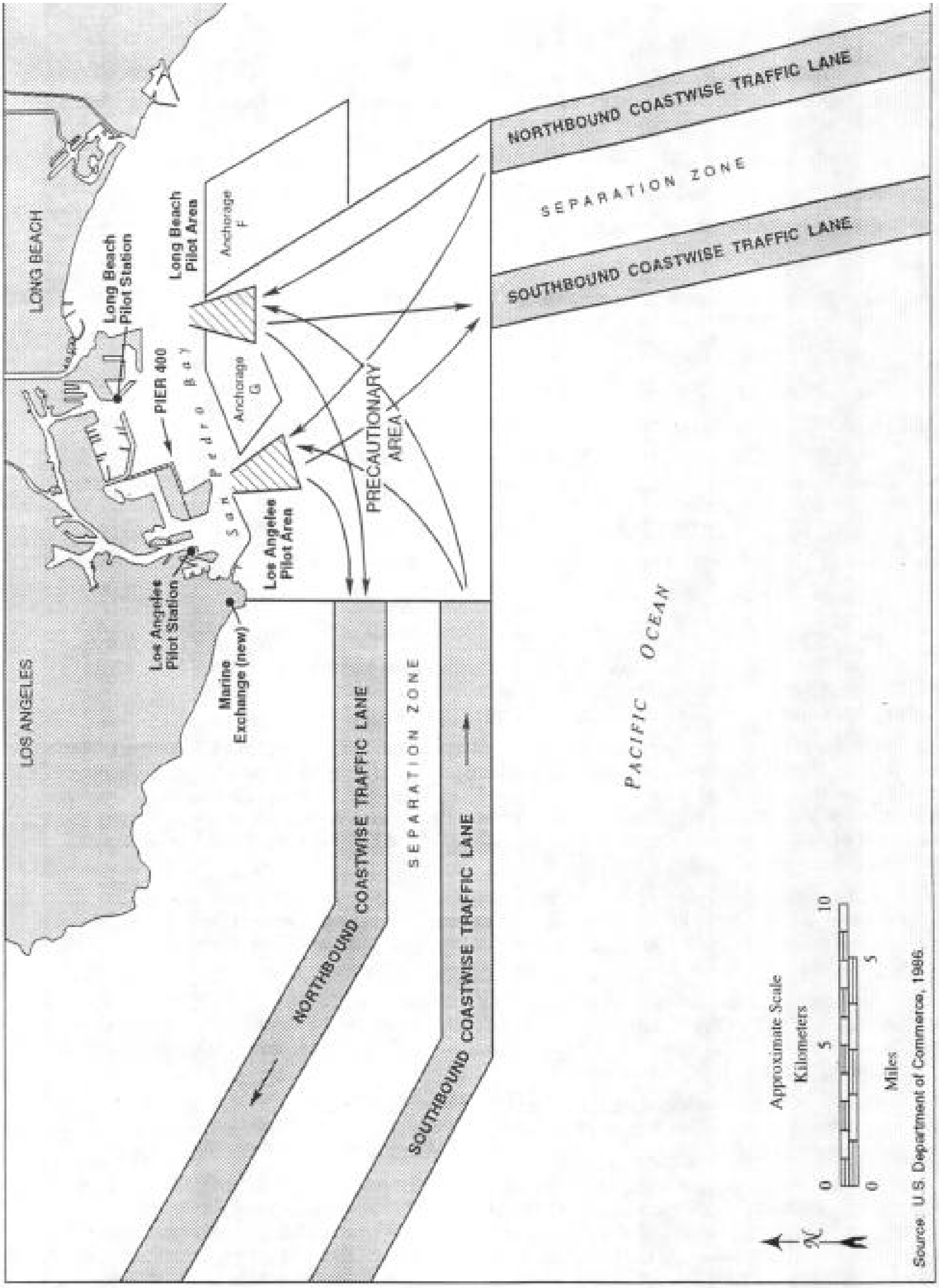


Figure 3.3-1 Port Access Routes

Upon entering the Precautionary Area, covered arriving vessels must call the Vessel Traffic Center and provide the following information:

- Confirm vessel speed at 12 knots or below
- Confirm master is on bridge
- Confirm vessel is in hand steering
- Contact Pilots, as appropriate

Covered vessels departing from inside the breakwater must call the Vessel Traffic Center 15 minutes prior to departing the breakwater entrance and provide the following information:

- Vessel name/call sign/present location
- Destination
- ETA to 25 mile limit from Point Fermin when practicable

In addition, covered departing vessels must maintain speed at 12 knots or less through the Precautionary Area, report its departure from the Precautionary Area to the Vessel Traffic Center, and report its departure from the VTIS at the 25 mile limit to the Vessel Traffic Center.

Covered vessels departing from anchorages outside the breakwater must call the Vessel Traffic Center 15 minutes prior to heaving anchor and provide the following information:

- Vessel name/call sign
- ETA to seabuoy (if inbound) or destination (if outbound)

In addition, covered vessels departing from anchorages must maintain speed at 12 knots or less through the Precautionary Area, report departure from the Precautionary Area to the Vessel Traffic Center, and report ETA to and departure from 25 mile limit if outbound.

The Ports of Los Angeles and Long Beach do not require the use of Port Pilots on all commercial vessels because of liability considerations, however, they mandate a pilotage charge of 75 percent of the normal pilotage fee if a vessel declines to use the services of a Port Pilot. Hence, the number of vessels moving without the service of a Port Pilot is negligible. Pilots normally board Port of Los Angles arriving vessels in the vicinity of the Los Angeles Sea Buoy located in the Precautionary Area.

Radar systems are operated by both the Long Beach and Los Angeles pilot services to monitor vessel traffic within the harbor area. This information is available to all vessels upon request. The pilot services also manage the use of anchorages under an agreement with the USCG.

A communication system links the following key operational centers; USCG Captain of the Port, Vessel Traffic Center, Los Angeles Pilot Station, Long Beach Pilot Station, and Port of Long Beach Security. This system is used to exchange vessel movement information and safety notices among the various organizations.

Vessel traffic channels and turning basins have been established in the harbor and numerous aids to navigation have been placed. Other operating rules and regulations have been established as needed. Those specific to the Port of Los Angeles are listed in the Port Tariff.

A Los Angeles-Long Beach Harbor Safety Committee was established in 1991 to evaluate harbor safety and make recommendations as appropriate. This committee, which includes members from tanker operators, dry cargo vessel operators, pilots, tug/barge operators, USCG, California Coastal Commission, Ports of Los Angeles and Long Beach, labor organizations, and environmental organizations, meets on a periodic basis and publishes the results of its findings in a Harbor Safety Plan, which was last updated in 1996. Among other areas, this evaluation and plan addresses weather and tidal conditions, aids to navigation and harbor depths, anchorages and anchorage management, vessel routing during construction and dredging, vessel routing during emergencies, channel design, small vessel safety, vessel traffic service, guidelines for under keel clearance, guidelines for vessel movement in reduced visibility, and pilotage safety issues.

Commercial vessel traffic to the combined Port of Los Angeles and Port of Long Beach area has shown a downward trend over the past seven calendar years (see Table 3.3-1) as industry increasingly utilizes larger vessels. The number of container vessels calling at the Port of Los Angeles has remained approximately the same the past two years with 1485 calling in 1997.

Table 3.3-1. Commercial Vessel Traffic

Year	Port of Los Angeles Vessel Calls	Combined Ports of Los Angeles and Long Beach Ports Vessel Calls
1997	2,524	5,244
1996	2,634	5,485
1995	2,464	5,308
1994	2,870	
1993	2,919	
1992	3,052	
1991	3,414	

3.3.3 SIGNIFICANCE CRITERIA

A significant maritime impact would occur if the project results in a substantial reduction of current safety levels for vessels calling at the Port.

3.3.4 IMPACTS OF THE PROPOSED PROJECT

3.3.4.1 Construction

Phase 1A

The only vessels operating during construction of the terminal will be one tugboat, one piledriver, and one derrick barge for driving piles. The piles will be used to construct the wharves for the proposed terminal. Vessel operations will be limited to daylight hours, piledriving will be completed prior to the start of the California least tern nesting season, vessel operation will be in accordance with all applicable rules and regulations issued and enforced by the U.S. Coast Guard for commercial vessels, and all operations will be coordinated with the U.S. Coast Guard and the Los Angeles Harbor Department port pilots.

The site is within a U.S. Coast Guard Safety Zone/ Exclusion Area established to prevent boating accidents associated with the construction of Pier 400. The general boating public is not permitted to enter these areas. Citations are written by the U.S. Coast Guard and/or the Port Police for violations. Accordingly, impacts are expected to be minimal and insignificant.

Phase 2A

The only vessels operating during construction of the terminal will be one tugboat, one piledriver, and one derrick barge for driving piles. The piles will be used to construct the wharves for the proposed terminal. Vessel operations will be limited to daylight hours, piledriving will be completed prior to the start of the California least tern nesting season, vessel operation will be in accordance with all applicable rules and regulations issued and enforced by the U.S. Coast Guard for commercial vessels, and all operations will be coordinated with the U.S. Coast Guard and the Los Angeles Harbor Department port pilots.

The site is within a U.S. Coast Guard Safety Zone/ Exclusion Area established to prevent boating accidents associated with the construction of Pier 400. The general boating public is not permitted to enter these areas. Citations are written by the U.S. Coast Guard and/or the Port Police for violations. Accordingly, impacts are expected to be minimal and insignificant.

3.3.4.2 Operation

Phase 1A

Phase 1A will result in up to 277 container ship calls per year to the eastern portion of the northern side of Pier 400. The container ships will range in size from about 650 feet to about 1,050 feet in length. Up to three ships could be at the wharf at the same time. The width of the channel between Pier 300 and Pier 400 is 1,000 feet pier head to pier head. That leaves a minimum channel width of 700 feet when ships are docked along both piers. An 1,800-foot diameter turning basin has been established at the entrance to the channel between Pier 300 and Pier 400. Ships would be turned with the assistance of one or two tugs and then backed into the wharf.

The design of the channel and the turning basin was evaluated by Port Pilots using a simulator and adjustments were made to increase safety. Port Pilots (personal communication Capt. Donahue, 1998) believe the turning basin and approach to the Pier 400 wharves are safely designed and do not decrease navigational safety in the Port. In addition, there are presently no shortages of anchorages and the increased vessel traffic can safely be accommodated by the existing anchorages.

Table 3.3-2 presents the U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992) estimated number of vessel callings by vessel type for the San Pedro Bay Ports out to the year 2020. These estimates do not include vessels associated with the build out of Pier 400. In recent years, there have been slightly more vessel calls to the Port of Long Beach than to the Port of Los Angeles. Hence, it can conservatively be assumed that half the vessel calls would be to the Port of Los Angeles. As shown in section 3.3.2, there were 2,524 vessel calls to the Port of Los Angeles in 1997.

Table 3.3-2. Projected Vessel Callings for San Pedro Bay Ports

	Year		
Vessel Type	2000	2010	2020
Container Ship	3,084	3,034	2,748
General Cargo	1,480	1,480	1,480
Auto Carrier	700	700	700
Dry Bulk	671	868	542
Liquid Bulk	453	395	384
Passenger	400	550	700
Naval	600	0	0
Subtotal	7,388	7,027	6,555
Transient	2,800	2,100	1,600
TOTAL	10,188	9,127	8,155
Estimated POLA Share	4,994	4,938	4,427

The 277 container vessels projected to call at Pier 400 for Phase 1A added to the 1997 vessel calls results in 2,801 vessel calls. This is less than the total number of vessel calls to the Port of Los Angeles for the years 1991 to 1994 as shown in section 3.3.2. There were no significant vessel traffic safety problems during those years. In addition, measures enacted as a result of the Harbor Safety Committee have improved safety over the past several years.

It is also noted that the vessel traffic levels presented in Table 3.3-2 were used by the U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992) to assess the potential impacts on vessel traffic safety during the years 2000 through 2020. As can be seen from the table, the number of vessels projected to call at the Port of Los Angeles (assumed to be half the subtotal column) is greater than the 1997 vessel calls plus the projected Pier 400 Phase 1A vessel calls. U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992) determined that the number of vessel calls projected would not result in a significant vessel traffic impact. Thus, it can be concluded that the operation of Pier 400 Phase 1A would not result in a significant vessel traffic impact.

Phase 2A

Phase 2A will make use of the entire northern side of Pier 400 to dock container ships, either five or six berths may be constructed. Up to six ships could be at the wharf at the same time. Phase 2A could result in up to 589 container ship calls per year. The container ship sizes will be about the same as for Phase 1A. The number of vessel calls for 1997 plus the 589 vessel calls for Phase 2A (2,524 + 589 = 3,113) is less than the number of vessel calls for 1991 which did not result in significant vessel traffic impacts. As with Phase 1A, the 3,113 vessel calls is less than those utilized by the U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992) to determine that there would be no significant vessel traffic impact out to the year 2020. Thus, it is concluded that there will be no significant vessel traffic impact from the operation of Phase 2A of Pier 400. This conclusion applies to both the five- and six-berth scenarios because ship calls would be the same for both.

3.3.5 IMPACTS OF THE ALTERNATIVE DESIGN

3.3.5.1 Construction

Phase 1B

The only vessels operating during construction of the terminal will be one tugboat, one piledriver, and one derrick barge for driving piles. The piles will be used to construct the wharves for the proposed terminal. Vessel operations will be limited to daylight hours, piledriving will be completed prior to the start of the California least tern nesting season, vessel operation will be in accordance with all applicable rules and regulations issued and enforced by the U.S. Coast Guard for commercial vessels, and all operations will be coordinated with the U.S. Coast Guard and the Los Angeles Harbor Department port pilots.

The site is within a U.S. Coast Guard Safety Zone/ Exclusion Area established to prevent boating accidents associated with the construction of Pier 400. The general boating public is not permitted to enter these areas. Citations are written by the U.S. Coast Guard and/or the Port Police for violations. Accordingly, impacts are expected to be minimal and insignificant.

Phase 2B

The only vessels operating during construction of the terminal will be one tugboat, one piledriver, and one derrick barge for driving piles. The piles will be used to construct the wharves for the proposed terminal. Vessel operations will be limited to daylight hours, piledriving will be completed prior to the start of the California least tern nesting season, vessel operation will be in accordance with all applicable rules and regulations issued and enforced by the U.S. Coast Guard for commercial vessels, and all operations will be coordinated with the U.S. Coast Guard and the Los Angeles Harbor Department port pilots.

The site is within a U.S. Coast Guard Safety Zone/ Exclusion Area established to prevent boating accidents associated with the construction of Pier 400. The general boating public is not permitted to enter these areas. Citations are written by the U.S. Coast Guard and/or the Port Police for violations. Accordingly, impacts are expected to be minimal and insignificant.

Phase 1B

Phase 1B will result in up to 500 container ship calls per year to the eastern portion of the northern side of Pier 400. The container ships will range in size from about 650 feet to about 1,050 feet in length. The width of the channel between Pier 300 and Pier 400 is 1,000 feet pier head to pier head. That leaves a minimum channel width of 700 feet when ships are docked along both piers. An 1,800-foot diameter turning basin has been established at the entrance to the channel between Pier 300 and Pier 400. Ships would be turned with the assistance of one or two tugs and then backed into the wharf.

The design of the channel and the turning basin was evaluated by Port Pilots using a simulator and adjustments were made to increase safety. Port Pilots (Capt. Donahue 1998) believe the turning basin and approach to the Pier 400 wharves are safely designed and do not decrease navigational safety in the Port. In addition, there are presently no shortages of anchorages and the increased vessel traffic can safely be accommodated by the existing anchorages.

Table 3.3-2 presents the U.S. Army Corps of Engineers and Los Angeles Harbor Department (1992) estimated number of vessel callings by vessel type for the San Pedro Bay Ports out to the year 2020. These estimates do not include vessels associated with the build out of Pier 400. In recent years, there have been slightly more vessel calls to the Port of Long Beach than to the Port of Los Angeles. Hence, it can conservatively be assumed that half the vessel calls would be to the Port of Los Angeles. As shown in section 3.3.2, there were 2,524 vessel calls to the Port of Los Angeles in 1997.

The 500 container vessels projected to call at Pier 400 for Phase 1B added to the 1997 vessel calls results in 3,024 vessel calls. This is less than the total number of vessel calls to the Port of Los Angeles for the years 1991 to 1994 as shown in section 3.3.2. There were no significant vessel traffic safety problems during those years. In addition, measures enacted as a result of the Harbor Safety Committee have improved safety over the past several years.

It is also noted that the vessel traffic levels presented in Table 3.3-2 were used by the U.S. Army Corps of Engineers and Los Angeles Harbor Department (1992) to assess the potential impacts on vessel traffic safety during the years 2000 through 2020. As can be seen from the table, the number of vessels projected to call at the Port of Los Angeles (assumed to be half the subtotal column) is greater than the 1997 vessel calls plus the projected Pier 400 Phase 1B vessel calls. U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992) determined that the number of vessel calls projected would not result in a significant vessel traffic impact. Thus, it can be concluded that the operation of Pier 400 Phase 1B would not result in a significant vessel traffic impact.

Phase 2B

Phase 2B will make use of the entire northern side of Pier 400 to dock container ships. Up to eight ships could be at the wharf at the same time. Phase 1B and 2B combined could result in up to 750 container ship calls per year. The container ship sizes will be about the same as for Phase 1B. The number of vessel calls for 1997 plus the 750 vessel calls for Phase 1B and 2B (2,524 + 750 = 3,274) is less than the number of vessel calls for 1991 which did not result in significant vessel traffic impacts. As with Phase 1B, the 3,274 vessel calls is less than those utilized by the U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992) to determine that there would be no significant vessel traffic impact out to the year 2020. Thus, it is concluded that there will be no significant vessel traffic impact from the operation of Phase 2B of Pier 400.

3.3.6 IMPACTS OF THE GAP CLOSURE ALTERNATIVE

3.3.6.1 Construction

Project construction impacts will be reduced slightly from those assessed above for a bridged gap. Working vessels required to construct the bridge will no longer be required reducing vessel traffic during Phase 1 construction. Other working vessels, however, will be required to fill the gap and place bank protection in place. Filling the gap, however, will take less time than building a bridge. Impacts to other vessels will thus occur over a shorter time. Impact assessment for the actual gap closure was discussed in the Deep Draft Navigation Improvements Program EIS/EIR (LAHD AND USACE, 1992) and will not be repeated here.

3.3.6.2 Operation

Project operation impacts will remain unchanged from those assessed above for a bridged gap.

3.3.7 MITIGATION

3.3.7.1 Proposed Project

No mitigation measures are recommended because no significant impacts would occur.

3.3.7.2 Alternative Design

No mitigation measures are recommended because no significant impacts would occur.

3.3.7.3 Gap Closure Alternative

No mitigation measures are recommended because no significant impacts would occur.

3.3.8 CUMULATIVE IMPACTS

3.3.8.1 Proposed Project

Because of the economics of vessel transportation, newer ships are being designed to carry more cargo. Thus, the number of ships required to carry the same amount of cargo is decreasing. The Port of Los Angeles Deep Draft Navigation Improvements was undertaken to allow larger ships to call at the Port. Thus, as the Port increases the amount of cargo being handled through build out of landfills and improvements at other terminals, the number of vessels expected to call is not expected to increase above those levels analyzed by the U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992). Thus, no cumulative significant vessel traffic impacts would occur.

3.3.8.2 Alternative Design

Because of the economics of vessel transportation, newer ships are being designed to carry more cargo. Thus, the number of ships required to carry the same amount of cargo is decreasing. The Port of Los Angeles Deep Draft Navigation Improvements was undertaken to allow larger ships to call at the Port. Thus, as the Port increases the amount of cargo being handled through build out of landfills and improvements at other terminals, the number of vessels expected to call is not expected to increase above those levels analyzed by the U.S. Army Corps of Engineers and Los Angeles Harbor Department (LAHD and USACE, 1992). Thus, no cumulative significant vessel traffic impacts would occur.

3.3.8.3 Gap Closure Alternative

Project cumulative impacts will remain unchanged from those assessed above for a bridged gap.

3.3.9 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

3.3.9.1 Proposed Project

There would be no significant unavoidable marine vessel adverse impacts from this proposed project.

3.3.9.2 Alternative Design

There would be no significant unavoidable marine vessel adverse impacts from the alternative design project.

3.3.9.3 Gap Closure Alternative

There would be no significant unavoidable marine vessel adverse impacts from the gap closure alternative project.

3.3.10 COMPARISON OF ALTERNATIVES

3.3.10.1 Construction Impacts

Impacts during construction for all alternatives are roughly equivalent. No one alternative is either better or worse than the others in terms of impacts to vessel traffic.

3.3.10.2 Operational Impacts

Projected vessel calls at the new terminal are listed in table 3.3-3 below. Operational impacts, in terms of container vessel calls, is identical for a given design alternative regardless of whether a bridged-gap or a filled-gap is utilized; hence only the two design alternatives are presented.

Table 3.3-3 Projected Vessel Calls for the Pier 400 Container Terminal

Alternative	Phase 1	Phase 2
Proposed Project	277	589
Alternative Design	500	750

The Proposed Project, either with the bridged-gap or filled-gap, would be the least damaging alternative in terms of vessel traffic impacts.

3.3.11 MITIGATION MONITORING PROGRAM

3.3.11.1 Proposed Project

No mitigation monitoring program is required since significance impacts are not identified and mitigation measures are not necessary.

3.3.11.2 Alternative Design

No mitigation monitoring program is required since significance impacts are not identified and mitigation measures are not necessary.

3.3.11.3 Gap Closure Alternative

No mitigation monitoring program is required since significance impacts are not identified and mitigation measures are not necessary.

3.3.12 IMPACTS FROM PROJECT ALTERNATIVES

3.3.12.1 Proposed Project

The following is a presentation of vessel transportation impacts that would occur from the construction and operation of the (1) Phases 1A and 2A design operated by separate customers and (2) no project alternatives.

Separate Terminals Alternative

Operating Phase 1A and Phase 2A as separate terminals would have no impact on vessel traffic safety. The use of Port Pilots and the VTIS would coordinate maneuvering of vessels in and out of the terminals, the channel, and the turning basin. The fact that the two terminals would be operated separately would be transparent from a vessel traffic perspective.

No Project Alternative

The no-project alternative would not increase vessel traffic to the Port of Los Angeles and thus would not have an impact on vessel traffic safety.

3.3.12.2 Alternative Design

The following is a presentation of vessel transportation impacts that would occur from the no project alternative. Impacts from a another alternative (Proposed Project) are addressed above.

No Project Alternative

The No-Project Alternative would not increase vessel traffic to the Port of Los Angeles and thus would not have an impact on vessel traffic safety.

3.4 Biota and Habitats

3.4.1 INTRODUCTION

Animal and/or plant communities in the immediate project area and surrounding region could be affected by the proposed action. The following section includes descriptions of the affected resource, predicted impacts of the proposed action, cumulative impacts of the proposed action and other projects in the region, and mitigations that would lessen significant impacts.

3.4.1.1 Data Sources

Additional information specific for this project is contained in special studies prepared for the Los Angeles Harbor Department by Science Applications International Corporation (SAIC, 1998e & 1998f).

3.4.2 ENVIRONMENTAL SETTING

Los Angeles Harbor can be divided into two contiguous, yet biologically distinct areas. The Outer Harbor, located between the U.S. Army Corps of Engineers breakwater and Terminal Island, and the Inner Harbor, consisting of the Main Channel, West Channel, East Channel, Fish Harbor, and their adjoining slips. The boundary between Inner Harbor and Outer Harbor lies at the entrance to the channels. Figure 3.4-1 shows these two distinct areas. The proposed project is located entirely in the Outer Harbor, so the following discussion will emphasize resources and impacts of the Outer Harbor.

3.4.2.1 Fish and Ichthyoplankton

The Los Angeles-Long Beach Harbor complex is a transient or permanent habitat for over 130 species of juvenile and adult fish (Horn and Allen, 1981; MEC, 1988a; LAHD and USACE, 1980). Although fish populations of the entire harbor appear diverse and abundant, 75 to 85 percent of the harbor is dominated by three species: white croaker (*Genyonemus lineatus*), northern anchovy (*Engraulis mordax*), and queenfish (*Seriphus politus*) (Brewer, 1983). Four other species consistently rank high in abundance in all studies and are considered important residents of the harbor. These are white surfperch (*Phanerodon furcatus*), California tonguefish (*Symphurus atricauda*), speckled sanddab (*Citharichthys stigmaeus*), and shiner surfperch (*Cymatogaster aggregata*) (Horn and Allen, 1981).

The varied nature of data collected for the harbor makes it difficult to calculate parameters such as fish density, population structure, productivity, and diversity (Horn and Allen, 1981). However, the U.S. Fish and Wildlife Service estimated fish densities from data collected from 1972 through 1982 (ES, 1990). There is a trend toward higher densities in the summer and fall ranging from 40 to 55 fish per 100 m^2, to lower densities in the winter ranging from 2 to 10 fish per 100 m^2 of surface area. Juvenile and adult individuals of most species are more abundant during the spring and summer than in winter (Horn and Allen, 1981). The similarity of collections over the years suggests that there has been no long-term, large-scale changes in the harbor fish fauna (MEC, 1988a).

Peaks in seasonal abundance and species richness in the Outer Harbor are high in late spring and early fall, peak in summer, and begin to decrease in late fall to yearly low levels in winter. Seasonal peaks in the Outer Harbor appear to reflect juvenile/young of the year recruitment (Brewer, 1983). Summer abundance peaks in the Outer Harbor may be enhanced by recruitment of Inner Harbor species (LAHD and USACE, 1984).

Studies of icthyoplankton and fish spawning have identified trends in abundance, density, and occurrence that help to characterize the harbor in terms of a spawning and nursery grounds (Brewer, 1983 & 1984; Horn and Allen, 1981; MBC, 1984; MEC, 1988a). The harbor is a

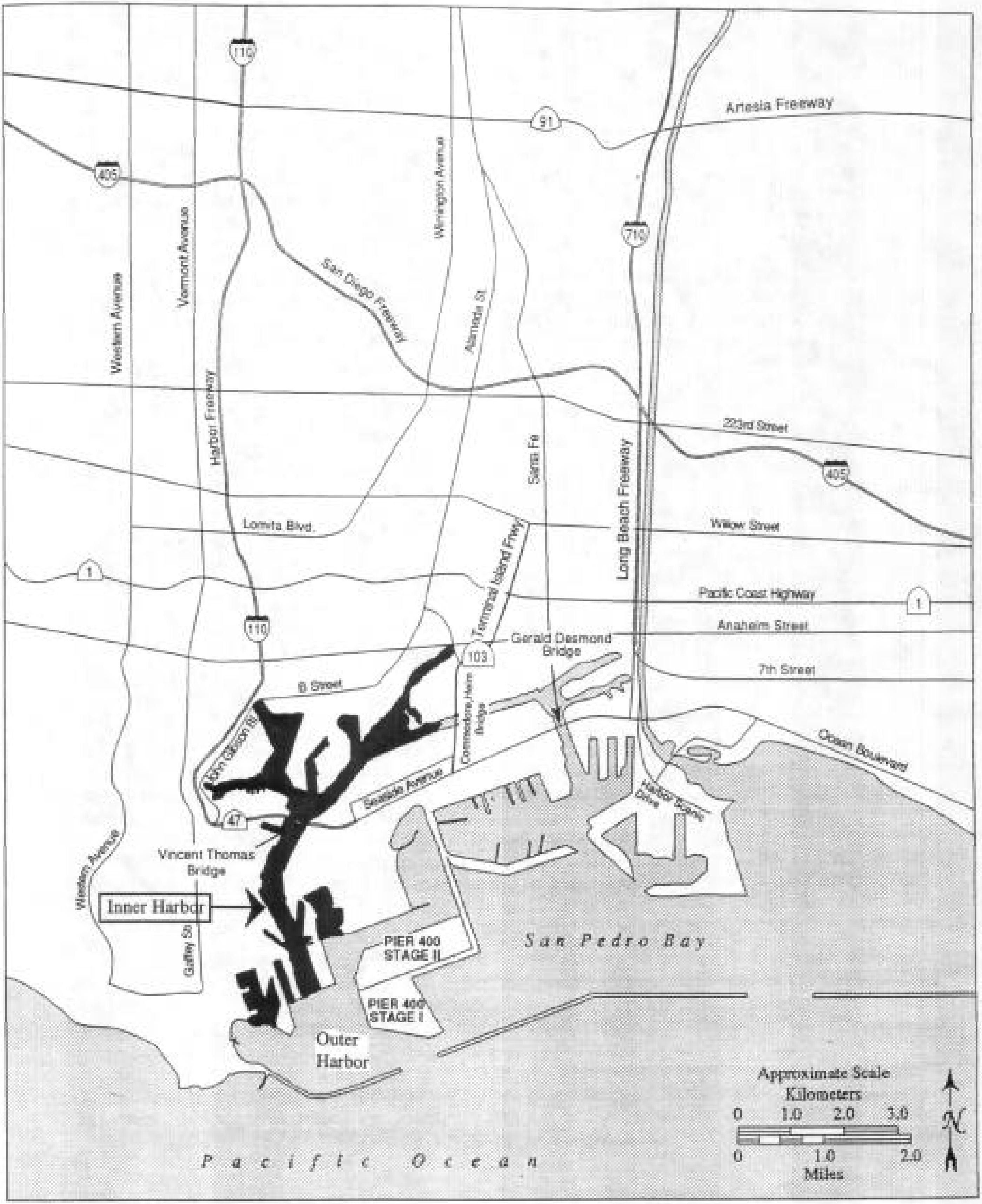


Figure 3.4-1 Los Angeles Harbor

viable, productive habitat for commercially- and recreationally-valuable species. However, areas outside the breakwater may have an equally important role as a nursery (ES, 1985).

Very little is actually known about the spawning and life history aspects of most commercially and recreationally important fish in the Los Angeles Harbor (Horn and Allen, 1981). The northern anchovy is better understood than others (Horn and Allen, 1981). This species appears to be a key component in harbor ecology as a major consumer of zooplankton and a major forage food for fish of higher trophic levels. The northern anchovy uses the area inside and outside the breakwater for spawning, nursery, and adult habitat.

Several carnivorous fish are important to the trophic relationships of demersal (bottom-dwelling) fish populations (Horn and Allen, 1981). These carnivorous species include barred sand bass (*Paralabrax nebulifer*), kelp bass (*P. clathratus*), California halibut (*Paralichthys californicus*), and several species of rockfish (*Sebastes* spp.). Horn and Allen (1981) also noted the occurrence of several species of large, fast-swimming predators in the harbor whose overall importance to the harbor ecosystem is unknown. These include gray smoothhound (*Mustelus californicus*), leopard shark (*Triakis semifasciata*), white seabass (*Cynoscion nobilis*), California corbina (*Menticirrhus undulatus*), and bat ray (*Myliobatis californica*).

Harbor ichthyoplankton tends to be dominated by various species on a spatial and temporal basis. Larvae of northern anchovy, white croaker, blenny (*Hypsoblennius* spp.), arrow goby (*Clevelandia ios*), and members of the family Gobiidae have all been found in abundance. Brewer (1983) found a similarity between the abundance of ichthyoplankton and juvenile-adults in the harbor. A large number of ichthyoplankton and juvenile-adult species have been reported in the harbor (HEP, 1976 & 1979; SCOSC, 1980 & 1982), which reflects the variety of nursery and adult habitats present. Ichthyoplankton data from Brewer (1983), MBC Applied Environmental Sciences (MBC, 1984), and the Southern California Ocean Studies Consortium (SCOSC, 1980 & 1982) also demonstrates the importance of Inner and Outer Harbor riprap or breakwaters as adult fish habitats.

3.4.2.2 Benthic Invertebrates

The Los Angeles/Long Beach Harbor area has a predominantly sand/silt composition (HEP, 1980), although the proportions and distributions vary according to area. Weak current velocities in the harbor tend to sort primarily for silt and secondarily for sand. Sand generally drops out of suspension and is moved small distances, while silt is transported to a greater extent. Areas with the greatest proportion of sand are located in the Main Channel and Outer Harbor. A predominance of silt is present in Cabrillo Beach and the slips of Inner Harbor. Clay, which usually remains in suspension and is flushed out, comprises less than 25 percent of the sediment composition throughout Los Angeles Harbor; clay accumulates primarily in areas of reduced circulation or in deeper basins that are poorly flushed.

The benthic environment supports a type of marine life that not only lives on the bottom, but contributes to and markedly modifies the character of the bottom. Benthic organisms are involved in a number of sedimentation processes. They may ingest sediment, causing mechanical abrasion of the solid particles and accelerate the solution of materials such as calcium carbonate. Ingestion also results in uptake of organic matter. Turning over superficial sediment layers by mud-eating and burrowing organisms aids in the interchange of water in the sediment with the overlying water. This results in oxygenation of the deeper layers and enhancement of substrate for bacterial action. Benthic marine organisms are also important as a food source for fish, crabs, and other benthic organisms. They are a vital source of secondary productivity in the harbor trophic schemes.

In the 1950's, some portions of the harbor benthos were devoid of macroscopic animal life due to high organic loading, low dissolved oxygen and anoxic conditions, leading to hydrogen sulfide buildup (HEP, 1976; LAHD and USACE, 1984). Improvements in water quality have synergistically aided the establishment of diverse assemblages of benthic animals in previously-disturbed Inner Harbor and channel areas (LAHD and USACE, 1980 & 1984).

The soft bottom benthos of the harbor is dominated by polychaetous annelids. Data from the 1970's showed that the polychaete *Tharyx parvus* accounted for most of the benthic organisms identified to the species level from soft bottom benthos samples (HEP, 1976; LAHD and USACE, 1980). Data from 1986 and 1987 showed that polychaetes were still numerically dominant, with crustaceans, mollusks, minor phyla, and echinoderms following in decreasing order of abundance (MEC, 1988a). Inner to Outer Harbor gradients in physical and biological parameters have been observed that create discrete faunal zones with distinct species complexes (HEP, 1976). Bottom depth, sediment coarseness, and various water quality parameters (in particular secchi depth and DO concentration) have been shown to correlate with diversity and number of taxa (taxonomic groups) of benthic invertebrates (MEC, 1988a).

The Inner Harbor supports a benthic invertebrate population that is a mixture of species that have an affinity for a variety of habitats, with a predominance of bay species. In comparison, benthic invertebrates found in the Outer Harbor were dominated by coastal species (MEC, 1988a).

3.4.2.3 Marine Algae

Marine algae are primary producers, providing a food source for herbivorous invertebrates and fish. With the availability of sufficient light and substrate for attachment, marine algae can develop dense stands providing food and habitat for various marine animals. Species diversity and algal cover increases from the Inner Harbor to outside the breakwater (LAHD and USACE, 1984). The Inner Harbor was dominated by sparse coverage of stress-tolerant species such as *Ulva* spp. and *Enteromorpha* spp., and the Outer Harbor was dominated by red and brown algal species, including *Sargassum* spp., *Taonia* spp., *Gigartina* spp., and *Corallina* spp. (LAHD and USACE, 1984). A strip of giant kelp (*Macrocystis sp.*) currently lines the inner side of the breakwater and along rock dikes in the Outer Harbor.

3.4.2.4 Marine Mammals

Marine mammals have not been well studied in Los Angeles Harbor, although both pinnipeds and cetaceans sometimes occur there. California sea lions (*Zalophus californianus*) are frequently observed resting on breakwaters of Outer Harbor (LAHD and USACE, 1979). Harbor seals (*Phoca vitulina*) occupy buoys in the Outer Harbor (LAHD and USACE, 1979) and near the San Pedro fish markets in the Main Channel. Cetaceans observed in the Outer Harbor include gray whale (*Eschrichtius robustus*), Pacific bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus delphis*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), Risso's dolphin (*Grampus griseus*), and Pacific pilot whale (*Globicephala macrorhynchus*) (LAHD and USACE, 1979). Sightings of these species within the harbor is rare.

3.4.2.5 Endangered, Threatened, and Other Special Status Species

Three state and federally listed endangered species, the California least tern (*Sterna antillarum browni*), the California brown pelican (*Pelecanus occidentalis californicus*), and peregrine falcon (*Falco peregrinus*) regularly use the harbor area. The state endangered Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) may be a transient visitor in the area. One was observed on the south side of Queensway Bay in March of 1984 (POLB, 1984). The federally threatened western snowy plover (*Charadrius alexandrinus*) inhabits coastal sandy beaches and flats. Two individuals were sighted in Los Angeles Harbor in September 1989, and a few have been observed in earlier studies (MEC, 1988a).

Several species of birds, including the elegant tern (*Sterna elegans*), caspian tern (*Sterna caspia*), royal tern (*Sterna maxima*) and black skimmer (*Rynchops niger*), protected by the Migratory Bird Treaty Act nested in the harbor in 1998 (K. Keane, personal communication, 1998). Individuals of these species not only use the harbor for breeding but forage on fish over shallow and deep waters in the harbor (MEC, 1988a; K. Keane, personal communication, 1998).

California Least Tern (Federal and State Endangered Species)

The California least tern (*Sterna antillarum browni*) is listed as endangered by both state and federal governments. This small seabird migrates north to southern and central California in May to breed (Massey, 1974). California least terns nest in coastal areas adjacent to shallow marine and estuarine habitats, where they can forage on fish at the water surface by diving into the water. The eggs are laid beginning in May, chicks start hatching by June and begin maturing into fledglings by early July (MEC, 1988a; KBC, 1997b). The terns generally depart for their wintering grounds in August (Massey and Atwood, 1981).

The location of one nesting colony for California least tern is located within the Port of Los Angeles. Presently the colony is located on the Stage I portion of Pier 400, a newly dredged landfill in the Outer Harbor between Terminal Island to the north and the middle breakwater of Los Angeles Harbor to the south. Historically the site has been located at a variety of locations on Terminal Island in the vicinity of Pier 300. However, in 1997 the birds nested for the first time on Pier 400. In 1998 the birds nested exclusively on Pier 400.

In 1997 the Port renewed its Memorandum of Agreement (MOA) with the USFWS, USACE, and CDFG regarding the California least tern nesting colony. This agreement identifies the responsibilities of the various parties in managing the nesting site and establishing procedures for the protection and relocation of the nesting site. The agreement is renewable every three to five years. Through the provisions of the MOA, the nesting site was partially relocated to Pier 400 in 1997, with the previous 15 acre site being maintained at Pier 300. In 1998 the least tern nesting site was fully relocated to Pier 400 and the Pier 300 site was relinquished. Two nesting sites (Figure 3.4-2) of 7.5 acres each were established on Pier 400 in 1998. The two sites, located 1,000 feet and 2,600 feet respectively from the boundary of the project, are in the center and southeast corner of the Stage I landfill. However, in 1997 and 1998 the entire Stage I landfill area was undeveloped and available for nesting.

The number of nesting pairs in Port of Los Angeles colony and their reproductive success have fluctuated considerably from year to year. Fourteen nests were observed in 1973, the first year of documentation. The number of nesting pairs ranged from zero in 1978, 1979, and 1980 to 219 in 1998, and the average number of fledglings per pair varied from 0.13 in 1987 to 1.5 in 1975 (K. Keane, personal communication, 1998; KBC, 1998a). This variability is related in part to the influence of predation on eggs, chicks, and adults by American crows, American kestrels, gulls, and feral cats, and availability of food in and around harbor, changing levels of human activity at the nesting sites, and availability of food resources in and around the harbor. In 1998 there were 219 nests, with 113 fledglings and in 1997 there were 76 nesting pairs, with 105 fledglings; (KBC 1997b; K. Keane, personnel communication, 1998). In the 1998 nesting season, while elegant, royal, and caspian terns nesting in association of one another, the least terns tended to nest in areas away from other nesting tern species.

Shallow water areas of the Outer Harbor are considered important areas for feeding and reproductive success of the California least tern. Adult California least terns observed in the Outer Harbor in 1986 and 1987 were feeding off Terminal Island in shallow water areas and off the Middle Breakwater (MEC, 1988a). During surveys conducted in 1994-1996, adults were observed feeding off Terminal Island in shallow water areas east of Pier 300 and in areas south of Pier 300. In addition feeding was observed off of Cabrillo Beach. No survey of foraging at the Middle Breakwater was performed (KBC, 1997a). After chicks hatched, foraging was more concentrated in the shallow waters adjacent to the colony (MEC, 1988a). Primary prey items of the California least tern are the northern anchovy, topsmelt, and jacksmelt (Atwood and Kelly, 1984; Massey and Atwood, 1984).

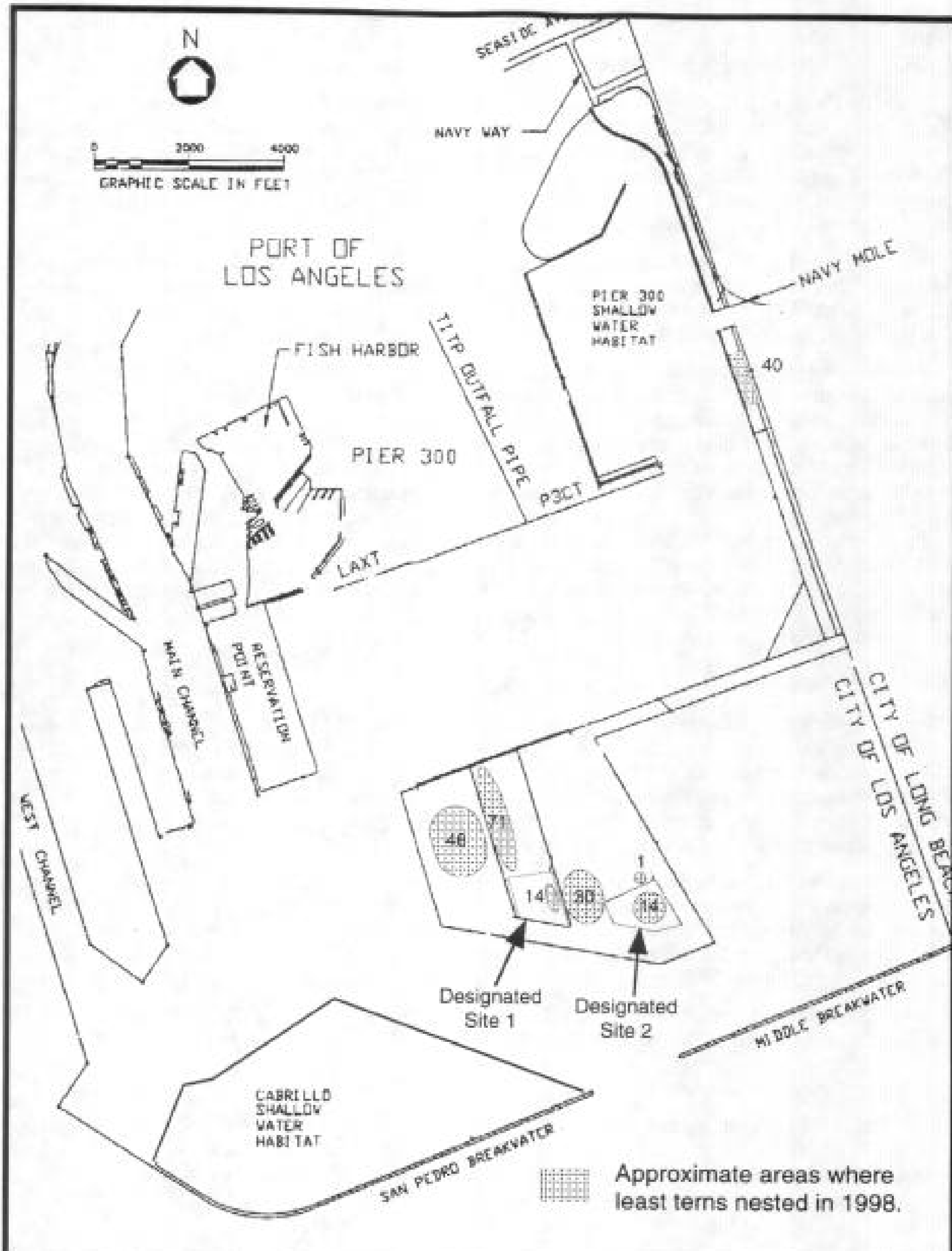


Figure 3.4-2 1998 California Least Tern Nesting Locations

California Brown Pelican (Federal and State Endangered Species)

The California brown pelican (*Pelecanus occidentalis californicus*) is protected as an endangered species by both state and federal legislation. This species originally was listed because of its low reproductive success, attributed to the production of thin-shelled eggs as a consequence of pesticide contamination. The discharge of DDT was prohibited in 1970, and it appears that the brown pelican population has largely recovered (Anderson et, al., 1975; Schreiber, 1980; Gress and Anderson, 1983).

California brown pelicans forage along the coast of California all year, but in smaller numbers during the breeding season (approximately January through June). Breeding occurs in Mexico, in the Gulf of California, and at Anacapa Island, Santa Barbara Island, and Scorpion Rock (Santa Cruz Island) off the coast of California (Gress and Anderson, 1983).

Brown pelicans have been observed year-round in the harbor complex, although their numbers fluctuate seasonally due to an influx of postbreeding birds from Mexico in the summer (Gress et al., 1990). Studies conducted in 1983 and 1984 (POLB, 1984) indicated that the highest densities of brown pelicans occur between early July and early November (several thousand birds), with a sharp decrease in numbers after November. Minimum densities were noted in late March. Brown pelicans were one of the most abundant species observed in the Outer Harbor during studies conducted in 1986 and 1987 (MEC, 1988a). Within the Outer Harbor, pelicans rest on breakwaters in areas with little human disturbance (MEC, 1988a). In particular, remote areas of the Harbor such as the Middle Breakwater appear to be preferred resting spots (MBC, 1984; MEC, 1988a). Pelicans are diving birds that feed exclusively on fish. During the MEC (1988a) study, pelicans were observed foraging in open waters off Terminal Island and in shallow waters adjacent to the Seaplane Anchorage.

Peregrine Falcon (Federal and State Endangered Species)

The federally endangered peregrine falcon (*Falco peregrinus*) feed on other birds and nest on ledges on high structures. Like the brown pelican, this species originally was listed because of its low reproductive success, attributed to the production of thin-shelled eggs as a consequence of pesticide contamination. With the prohibition of DDT production and use in 1970, the reproductive success of the species has increased. This coupled with a captive breeding program has helped increase the abundance of the species.

Peregrine falcons reside within the San Pedro Bay area and have been reported nesting on the Long Beach City Hall, near the Port of Long Beach Administration Building, on the Vincent Thomas bridge and on the Commodore Schuler F. Heim Bridge (Carl Felander, per. com. 12 May, 1998). Peregrine falcons have also been observed on Terminal Island and flying over the Outer and Inner Harbor (K. Keane, personal communication, 1998).

This species is presently being considered for delisting by the federal government. Delisting was proposed in the Federal Register (63 FR 45446, August 28, 1998).

Belding's Savannah Sparrow (State Endangered Species)

The state endangered Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) may be a transient visitor in the area, although no apparent habitat for this species is present in the harbor. There are small areas of pickleweed located in Los Angeles Harbor in the Cabrillo Salt Marsh and the Southwest Slip of the West Basin. However, there is no record that either of these locations is utilized by the Belding's savannah sparrow for nesting.

Western Snowy Plover (Federal Threatened Species)

The federally threatened western snowy plover (*Charadrius alexandrinus*) inhabits coastal sandy beaches and flats. Two individuals were sighted in Los Angeles Harbor in September 1989, and a few have been observed in earlier studies (MEC, 1988a). However, the project area does not contain suitable habitat to support nesting or feeding by this species. Newly hatched plovers are precocious and begin feeding on their own as soon as they hatch. This normally requires access to intertidal/beach areas where they feed on invertebrates. Pier 400 is surrounded by dikes which do not afford access to intertidal areas for feeding by plover chicks.

Elegant Tern (Migratory Species)

The elegant tern (*Sterna elegans)* is a migratory species protected by the Migratory Bird Treaty Act which winters primarily in South American and migrates north for breeding season, which begins in June, then returns south in November (Stallcup, 1990). Like all terns, the elegant tern feeds on small fish it captures by diving head-first into the water. It has been observed feeding in both shallow and deep waters. This species was recorded nesting in Los Angeles Harbor for the first time in 1998 when a large group (approximately 6,000 individuals) nested on the Stage I portion of Pier 400 (K. Keane, personal communication, 1998). The terns produced large number of chicks, most of which survived to fledge. The nesting elegant terns were found primarily in the central and western portions of the Stage I landfill in association with caspian and royal terns. This onset of nesting within Los Angeles Harbor was coincidental with the absence of elegant terns nesting at Bolsa Chica wetlands.

Caspian Tern (Migratory Species)

Caspian terns (*Sterna caspia*) are a migratory species protected by the Migratory Bird Treaty Act common along the southern California coast. In 1997, approximately 25 pairs of caspian terns were observed nesting at the Central Nesting Site on the Stage I portion of Pier 400 in 1997. Approximately 95 nesting pairs returned to nest at the same location in 1998. (K. Keane, personal communication, 1998). The nesting was successful and a number of chicks and fledglings were produced. Like all terns, the caspian tern feeds on fish it captures by diving head-first into the water. Being the largest of the terns it feeds on a wider size range of fish. It has been observed feeding in both shallow and deep waters of the San Pedro Bay.

Royal Tern (Migratory Species)

Royal terns (*Sterna maxima*) are a migratory species protected by the Migratory Bird Treaty Act which breeds along the southern California coast. Seventeen pairs of Royal terns were first observed nesting within the Port on Stage I of Pier 400 in 1998 (K. Keane, personal communication, 1998). The nesting was successful and a number of chicks and fledglings were produced. Royal terns were observed feeding in the vicinity of Pier 400. Their typical prey are small fish found in shallow and deep waters.

Black Skimmer (Migratory Species)

The black skimmer (*Rynchops niger*) is migratory species protected by the Migratory Bird Treaty Act which has been extending its breeding range northward in recent years (Whelchel et. al., 1996). While previously observed in the San Pedro Bay, the species was first reported nesting in the Port in 1998. Nine nests have been in the central portion of Stage I Pier 400 (K. Keane, personal communication, 1998). Hatching and fledgling success for this nesting season can not be ascertained as yet. Black skimmers feed by flying just above the surface of the water and snatching-up fish swimming just below the surface. This restricts the species to feeding in very calm waters such as those in enclosed bays.

3.4.2.6 Invasive Species

Most large, ocean-going vessels carry ballast water to ensure proper operation. The stability of a vessel depends on horizontal and vertical weight distribution, so ballast is used to make allowances for cargo distribution. Ballast water is often discharged or taken in as necessary to maintain a vessel’s position while loading or unloading cargo in port, and it is usually taken in to improve stability prior to a vessel’s embarking on an ocean voyage. As a result, ballast water may be transported over great distances and discharged at other ports. Container vessels using west coast ports can typically carry 10,000-15,000 metric tons of ballast water, of which several thousand metric tons may be discharged while in port (USACE and Port of Oakland, 1998).

Many species of bacteria, plants, invertebrates, and fish (often as juveniles) can survive in ballast water or in sediment carried in the ballast tanks of vessels, even after journeys lasting several weeks

(Carlton, 1985; Chesapeake Bay Commission, 1995; NRC, 1996). Subsequent discharge of ballast water containing these organisms may result in the establishment of unwanted species, with unpredictable, but potentially serious environmental and economic impacts at the discharge location (Carlton and Geller, 1993). Nonindigenous aquatic animals and plants can have profound effects in terms of modifying food webs, causing structural changes in habitats, preying on or competing with native species, and having economic impacts from depletion of native fisheries, damage to maritime facilities from fouling organisms, and clogging of waterways (USACE and Port of Oakland, 1998).

The discharge of ballast water is considered a primary mechanism by which exotic aquatic organisms are introduced into bays and harbors around the world today (Chesapeake Bay Commission, 1995; NRC, 1996; USCG, 1998). As maritime commerce has expanded, the rate of exotic species introductions into coastal waters has increased. Even in coastal regions subject to maritime commerce for hundreds of years, such as Chesapeake Bay and San Francisco Bay, there is no evidence that most invasions likely to occur have already occurred (Carlton, 1985; Chesapeake Bay Commission, 1995; Cohen and Carlton, 1998). The San Francisco Bay/Delta estuary, with about 234 exotic aquatic species (Cohen and Carlton, 1995 & 1998), is probably the most severely invaded estuary in the world; yet since 1961, the rate of exotic species introductions has been approximately one new species introduction every 14 weeks (Cohen and Carlton, 1998). Exotic species are abundant and in many respects ecologically dominant in open water, soft- and hard-bottom habitats, throughout marine, brackish, and freshwater reaches of the Bay/Delta estuary (Cohen and Carlton, 1995).

One way to reduce the possibility of exotic species introductions via ballast water discharges into coastal and estuarine waters is for vessels to exchange ballast water while in deep ocean waters, where the organisms that are released are unlikely to have any impact, and the organisms that are taken in are unlikely to survive or have any impact upon subsequent release in coastal habitats. To this end, the International Maritime Organization (IMO) of the United Nations issued voluntary Guidelines for Preventing the Introduction of Unwanted Aquatic Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges, for member nations to exchange ballast water in open ocean areas. Most vessels, however, do not have programs to exchange ballast water at sea (USACE and Port of Oakland, 1998).

The National Invasive Species Act of 1996 requires the U.S. Coast Guard (USCG) to develop voluntary ballast management guidelines for all vessels entering U.S. waters (except the Great Lakes region and upper Hudson River, where ballast water management is mandatory). In April 1998, the USCG issued a proposed rule that would institute voluntary oceanic ballast water exchange and mandatory reporting of ballast water management practices for vessels that enter U.S. waters from outside of the Exclusive Economic Zone (EEZ), which extends 200 miles offshore (USCG, 1998). The voluntary program would ask the masters of all vessels with ballast tanks to perform a complete ballast water exchange at sea (outside the EEZ) prior to entering U.S. waters. The mandatory reporting requirement would involve detailed record-keeping and reporting to the USCG on ballast exchanges.

A final rule is expected in the second quarter of 1999. The USCG will report to Congress 2 years after the promulgation of the final rule regarding the effectiveness of the voluntary program and, based upon the results of the voluntary program, at that time will make recommendations on measures to reduce the risk of introduction of invasive species. The recommendations may include mandatory oceanic ballast water exchange (except when safety considerations preclude the practice), and/or additional ballast water management measures which are currently under development, such as the use of biocides, ultraviolet light treatment, and filtration (NRC, 1996; USACE and Port of Oakland, 1998).

The California Aquatic Nuisance Species Prevention and Control Act also requires that the Department of Fish and Game adopt a ballast water control report form, consistent with the report form developed by the Coast Guard, to monitor compliance with IMO's Guidelines and assist the Coast Guard in distributing this form to vessels.

The establishment of nonindigenous species in the waters of San Pedro Bay has recently been reviewed by Gregorio and Layne (1997). Based on that review, at least 46 invasive aquatic species, all of which are marine or euryhaline (tolerating a wide range of salinities) have become established in San Pedro Bay waters. Although not approaching the number of exotics known in San Francisco Bay, the number of invasive species in San Pedro Bay port waters is fairly high given the smaller area and lower diversity of habitats, essentially lacking fresh- and brackish waters. There is every reason to expect that exotic species are being regularly released in ballast discharges in San Pedro Bay, that some have recently become established without being detected, and that others will become established in the near future. Because of the volume of maritime traffic, the POLA, together with the Port of Long Beach represents a primary point-of-entry for exotic species into southern California waters. Conversely, San Pedro Bay commerce has probably "exported" exotic species to other ports as well (Cohen and Carlton, 1995).

Some of the more important nonindigenous species that have become established in San Pedro Bay include:

- The Japanese brown alga *Sargassum muticum*, a native of the far east, became established in California in the 1970s after being introduced on the shells of Japanese oysters. This bushy kelp is now common in shallow water on hard substrates in bays, as well as on the open coast, throughout southern California, including along the outer breakwater at the POLA (MEC, 1988a). This fast-growing, highly seasonal species provides habitat for invertebrates and fishes, but it may displace other ecologically important marine plants which are known to provide important nursery and foraging habitats for fishes.
- The bubble snail *Philine auriformis* has apparently become recently established in San Pedro Bay and in other bays and estuaries in California, probably as a result of ballast water exchange, and is a potentially important predator on native mollusks (MEC, 1988a; Gregorio and Layne 1997; USGS, 1998).
- The Japanese mussel *Musculista senhousia* is established in San Pedro Bay and elsewhere, probably as a result of ballast water exchange, and is of concern because of its ability to achieve densities as high as 200,000 per square meter, to the exclusion of native bivalves and marine plants (Gregorio and Layne, 1997).
- The isopod *Sphaeroma quoyanum* was also probably introduced to southern California via ballast water or sediment in ballast tanks, and is abundant on the shores of southern California bays. It achieves high densities in sand and mud banks, and its burrowing may cause the erosion of these features (Gregorio and Layne, 1997).
- Yellowfin goby (*Acanthogobius flavimanus*), native to fresh, brackish, and marine waters of the far East and apparently introduced into California as a result of ballast water discharges, was first recorded in southern California in LA Harbor in 1977 (USGS, 1998). It was fairly common by 1987 in LA Harbor (MEC, 1988a), and more recent surveys have indicated its establishment throughout southern California, where it frequently occurs in bays and lagoons (e.g., MEC, 1993 & 1995). It competes with and preys upon other shallow water benthic fishes.

Other mechanisms exist for the introduction of exotic species. For example, the purposeful introduction of organisms as food, for pest control, or for vegetation control; the accidental release of exotic pets; or migration of exotic species introduced into adjacent areas. Since none of these mechanisms are project impacts, there will be no further discussion in this document.

Among the many exotic species that have established populations in San Francisco Bay and other west coast ports and could be introduced into San Pedro Bay waters in the near future is the European green crab (*Carcinus maenas*). The green crab is a voracious predator of invertebrates and small fishes that can tolerate a wide range of salinities. It was introduced into San Francisco Bay in 1989, and has since spread to Oregon (SEI, 1998).

3.4.3 IMPACT SIGNIFICANCE CRITERIA

The following criteria are used to determine the significance of impacts.

Plant Life

- Impacts to aquatic plants for ten years or longer directly or indirectly resulting in substantial changes in (a) species composition or abundance beyond that of normal variability or (b) ecological function within a localized area.
- Loss of any rare, endangered, or sensitive plant species or loss/degradation of the critical habitat of those species.

Animal Life

- Impacts to attached or free-swimming aquatic animals for ten years or longer directly or indirectly resulting in substantial changes in (a) species composition or abundance beyond that of normal variability or (b) ecological function within a localized area.
- Loss of any rare, endangered, or sensitive animal species or loss/degradation of the critical habitat of those species.
- Permanent deterioration or contamination of the aquatic habitat such that the aquatic ecosystem of the harbor is substantially disrupted.

3.4.4 IMPACTS OF THE PROPOSED PROJECT

3.4.4.1 Project Construction

Endangered, Threatened, and Other Special Status Species

Of the five state and federally listed endangered or threatened species known from the harbor area, only the California least tern could be affected by the proposed project. The peregrine falcon and Belding's savannah sparrow are not expected to occur in the project area since there are no habitat resources for these species in the project area, and any transients passing through the area would not be adversely affected by project construction. The California brown pelican is found throughout the Port complex and feeds both within the Port and along the coast. It does not use the Port area for reproduction, but nests on the Channel Islands. It's important roosting habitat is on the Middle Breakwater not likely to be impacted.

The western snowy plover has been observed on nearby Terminal Island, however, Pier 400 does not contain suitable habitat, sandy beaches with access to food resources (i.e. intertidal or salt marsh areas), to support nesting or feeding of this species.

In accordance with negotiations pursuant to the tern nesting site MOA, a 15-acre designated least tern nesting site is to be located in the southeast corner of Pier 400 in 1999 (Figure 3.4-3). In addition, a management area is to be provided in 1999 in which no construction activity will occur during the least tern nesting season. This nesting site and management area are also available to the other tern species and black skimmers since all of these species nest in open sandy areas. If the least terns or other protected bird species nest in the construction area, there is the potential for a significant impact from disturbance by construction activity of nesting or from the destruction of nests, eggs, chick and/or adults.

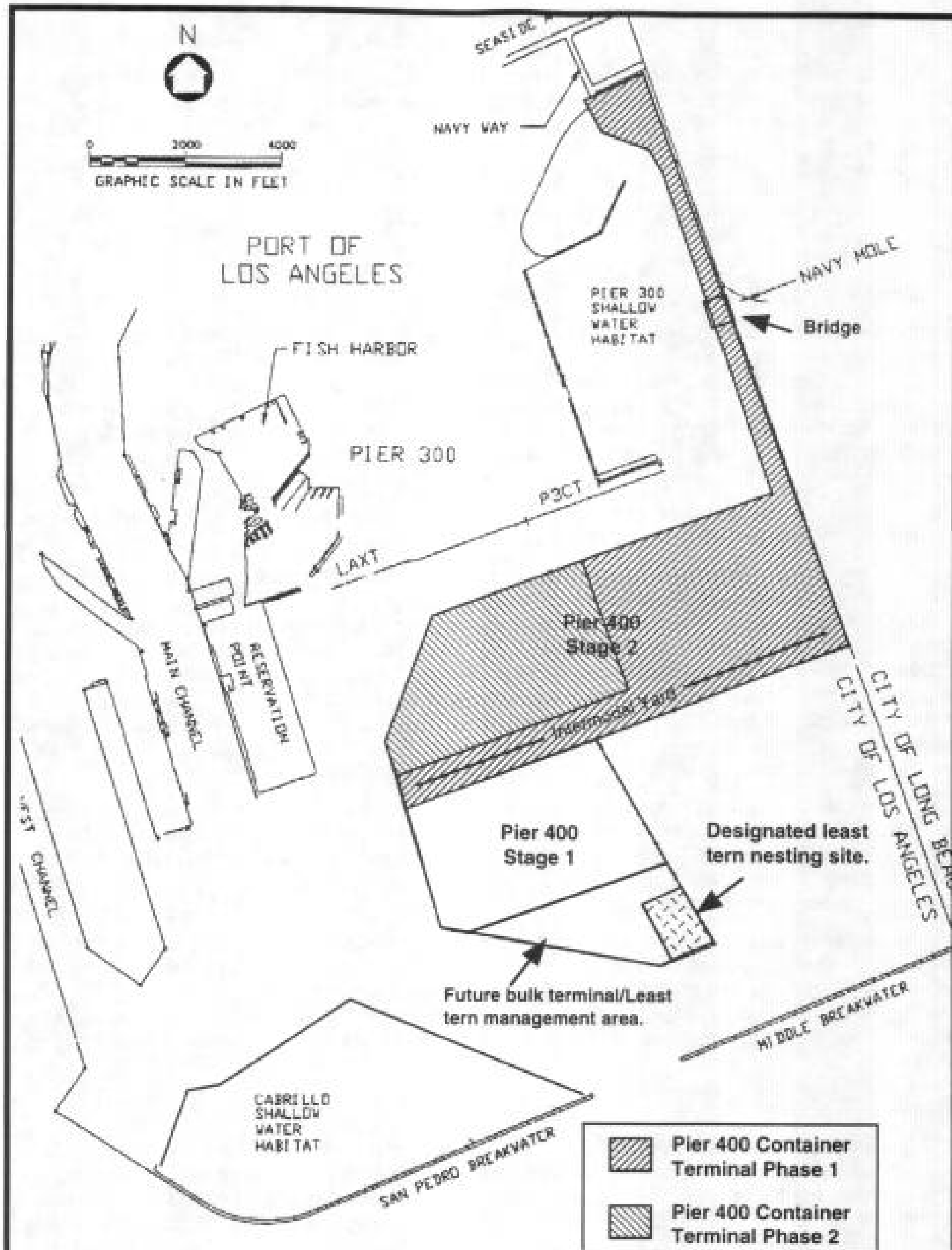


Figure 3.4-3 California Least Tern Nesting Sites - Proposed Project

Marine mammal use of the harbor, particularly in the vicinity of Pier 400 is very limited. These animals are very mobile and would be able to avoid injuries from construction equipment and activities. Marine mammals will not be adversely impacted by the construction of this project.

Invasive Species

No impact anticipated during construction.

3.4.4.2 Project Operation

Endangered, Threatened, and Other Special Status Species

Of the five state and federally listed endangered or threatened species known from the harbor area, only the California least tern and California brown pelican could be affected by the proposed project. The peregrine falcon and Belding's savannah sparrow are not expected to occur in the project area, and any transients passing through the area would not be adversely affected by project operation. The western snowy plover has been observed on nearby Terminal Island, however, the project area does not contain suitable habitat to support nesting or feeding of this species.

Currently the area south of the project site is open and sandy and as such will be available for nesting by least terns and the other protected bird species.

Operations of the container terminal could adversely affect the least terns and other species through direct and indirect effects related to night lighting, noise, and increased human presence. Lighting of nesting areas at night could discourage nesting in the vicinity of the project although the designated nesting area is approximately 3,500 feet from the facility. The light standards about (100 feet tall and 30 feet tall) could also provide new perching locations for predatory birds. There is a potential for a significant impact to the nesting of least terns and other protected species from high night-time light levels and predators perching on light poles adjacent to areas where birds may nest. This may result in terns avoiding areas adjacent to the proposed project in favor of available nesting areas farther south on Pier 400 including the designated nesting site.

Noise could disrupt nesting by least terns or other species. The California least tern is known to be tolerant of noise as it nests at the Alameda Naval Air Station and adjacent to roadways. In 1995 and 1996, the least tern successfully nested in an area directly adjacent to the construction of a container terminal (KBC, 1998a) and was apparently unaffected by noise. This potential impact is considered insignificant.

Human presence in the vicinity has the potential of disturbing the nesting activities of the least terns and other species. This disturbance may be either direct, humans entering nesting areas or indirectly, by attracting predators associated with human development such as American crows, rats, or feral cats. There is a potential for a significant impact to the nesting of least terns and other protected species from direct human disturbance and indirect via the introduction of predators into the area.

Invasive Species

Container terminal operations at Pier 400 would result in up to 277 container vessel calls per year with the implementation of Phase 1A, and up to 589 container vessel calls per year with the combined implementation of Phases 1A and 2A. The increase in ballast water discharge would depend on the mix of older, smaller Panamax vessels, and newer, larger post Panamax vessels; the latter are more stable, and hence require less use of ballast water. In San Francisco Bay it has been estimated that Panamax vessels each discharge an average of 4,000 metric tons of ballast water into the Bay, whereas post-Panamax vessels each discharge an average of 1,000 metric tons (USACE and Port of Oakland, 1998). Using these figures, a rough estimate is that from several hundred thousand to one million metric tons of ballast water would be discharged during Phase 1A, with about twice as much being discharged during Phase 2A.

Relative to “No Project” conditions, Phase 1A could increase container vessel calls to San Pedro Bay ports by about 5 percent, while Phase 2A could increase container vessel calls by about 10 percent. Since container vessels constitute about one-third of the large vessel traffic in San Pedro Bay, and other types of vessels discharge ballast water as well, the relative increase in ballast water discharge that could be attributable to the project is estimated to be on the order of 1 to 3 percent. This is a worst-case scenario. Should the new terminal be occupied by a tenant currently calling at either the Port of Los Angeles or the Port of Long Beach, impacts would then be limited to relocation from one terminal to another by the relocation of ship calls from one terminal to another, and no new impacts to San Pedro Bay would result.

Whether invasive exotic species are discharged in ballast water in the future will depend primarily on the USCG's near-term decisions regarding its proposed regulations (USCG, 1998), on whether more stringent measures are adopted in the long term, and on the development of practicable technologies that could preclude exotic species' survival and transport in ballast water (NRC, 1996). For the purpose of this analysis, it seems reasonable to assume that for at least the next 5 to 10 years, including the initial operation of the Pier 400 Terminal, exotic species will continue to be discharged in ballast water, but probably at a diminishing rate as regulatory action is taken. The identity of these invasive species, and their environmental and economic effects cannot be accurately predicted (Carlton and Geller, 1993).

In contrast to other major areas of maritime commerce, such as Chesapeake Bay and the San Francisco Bay-Delta region, San Pedro Bay does not contain significant estuarine, brackish, or freshwater habitats. Existing marine habitats in San Pedro Bay are largely artificial and have been heavily impacted by port development. These factors limit the potential consequences of exotic species introductions in San Pedro Bay. Under these circumstances, the relatively small increase or redistribution of ballast water discharge associated with the Pier 400 project is considered less than significant as a potential source of invasive exotic species.

3.4.5 IMPACTS OF THE ALTERNATIVE DESIGN

3.4.5.1 Project Construction

The types of impacts for the construction of the Alternative Design are similar to the proposed project, but are increased in magnitude due to the proximity of the proposed activity to the nesting area.

Endangered, Threatened, and Other Special Status Species

Of the five state and federally listed endangered or threatened species known from the harbor area, only the California least tern could be affected by the proposed project. The peregrine falcon and Belding's savannah sparrow are not expected to occur in the project area since there are no habitat resources for these species in the project area, and any transients passing through the area would not be adversely affected by project construction. The California brown pelican is found throughout the Port complex and feeds both within the Port and along the coast. It does not use the Port area for reproduction, but nests on the Channel Islands. It's roosting habitat is neither unique nor likely to be impacted.

The western snowy plover has been observed on nearby Terminal Island, however, Pier 400 does not contain suitable habitat, sandy beaches with access to food resources (i.e. intertidal or salt marsh areas), to support nesting or feeding of this species.

The designated least tern nesting site is located adjacent to the southern boundary of the project (Figure 3.4-3).   The nesting site and management area are also available to the other tern species and black skimmers for all nest open sandy areas. If the least terns or other protects bird species nest in the construction area, there is the potential for a significant impact from disturbance by construction activity of nesting or from the destruction of nests, eggs, chick and/or adults.

Marine mammal use of the harbor, particularly in the vicinity of Pier 400 is very limited. These animals are very mobile and would be able to avoid injuries from construction equipment and activities. Marine mammals will not be adversely impacted by the construction of this project.

Invasive Species

No impact anticipated during construction.

3.4.5.2 Project Operation

The type of impacts of the operation of the Alternative Design are similar to the proposed project, but are increased in magnitude due to the proximity of the facility to the designated least tern nesting site.

Endangered, Threatened, and Other Special Status Species

Of the five state and federally listed endangered or threatened species known from the harbor area, only the California least tern and California brown pelican could be affected by the proposed project. The peregrine falcon and Belding's savannah sparrow are not expected to occur in the project area, and any transients passing through the area would not be adversely affected by project operation. The western snowy plover has been observed on nearby Terminal Island, however, the project area does not contain suitable habitat to support nesting or feeding of this species.

Currently the area south of the project site is open and sandy and as such will be available for nesting by least terns and the other protected bird species. As the container terminal is completed, suitable nesting areas will be confined to a least tern management area (until future development of a liquid bulk facility) and the 15-acre nesting site established in accordance with the MOA. The nesting site is located immediately adjacent to the southern boundary of the current project (Figure 3.4-4).

Operations of the container terminal could adversely affect the least terns and other species through direct and indirect effects related to night lighting, noise, and increased human presence. Lighting of nesting areas at night could discourage nesting at the designated nesting site. The light standards about (100 feet tall and 30 feet tall) could also provide new perching locations for predatory birds. There is a potential for a significant impact to the nesting of least terns and other protected species from high night-time light levels and predators using light poles adjacent to the nesting area as perches.

Noise could disrupt nesting by least terns or other species. As a species, the California least tern is known to be tolerant of noise as it nests at the Alameda Naval Air Station. In 1995 and 1996, the least tern successfully nested in an area directly adjacent to the construction of a container terminal (KBC, 1998a) and was apparently unaffected by noise. This potential impact is considered insignificant.

Human presence in the vicinity has the potential of disturbing the nesting activities of the least terns and other species. This disturbance may be either direct, humans entering nesting areas, or indirect, by attracting predators associated with human development such as American crows, rats, or feral cats. There is a potential for a significant impact to the nesting of least terns and other protected species from direct human disturbance and indirect via the introduction of predators into the area.

Invasive Species

Container terminal operations at Pier 400 would result in up to 500 container vessel calls per year with the implementation of Phase 1B, and up to 750 container vessel calls per year with the combined implementation of Phases 1B and 2B. The increase in ballast water discharge would depend on the mix of older, smaller Panamax vessels, and newer, larger post Panamax vessels;

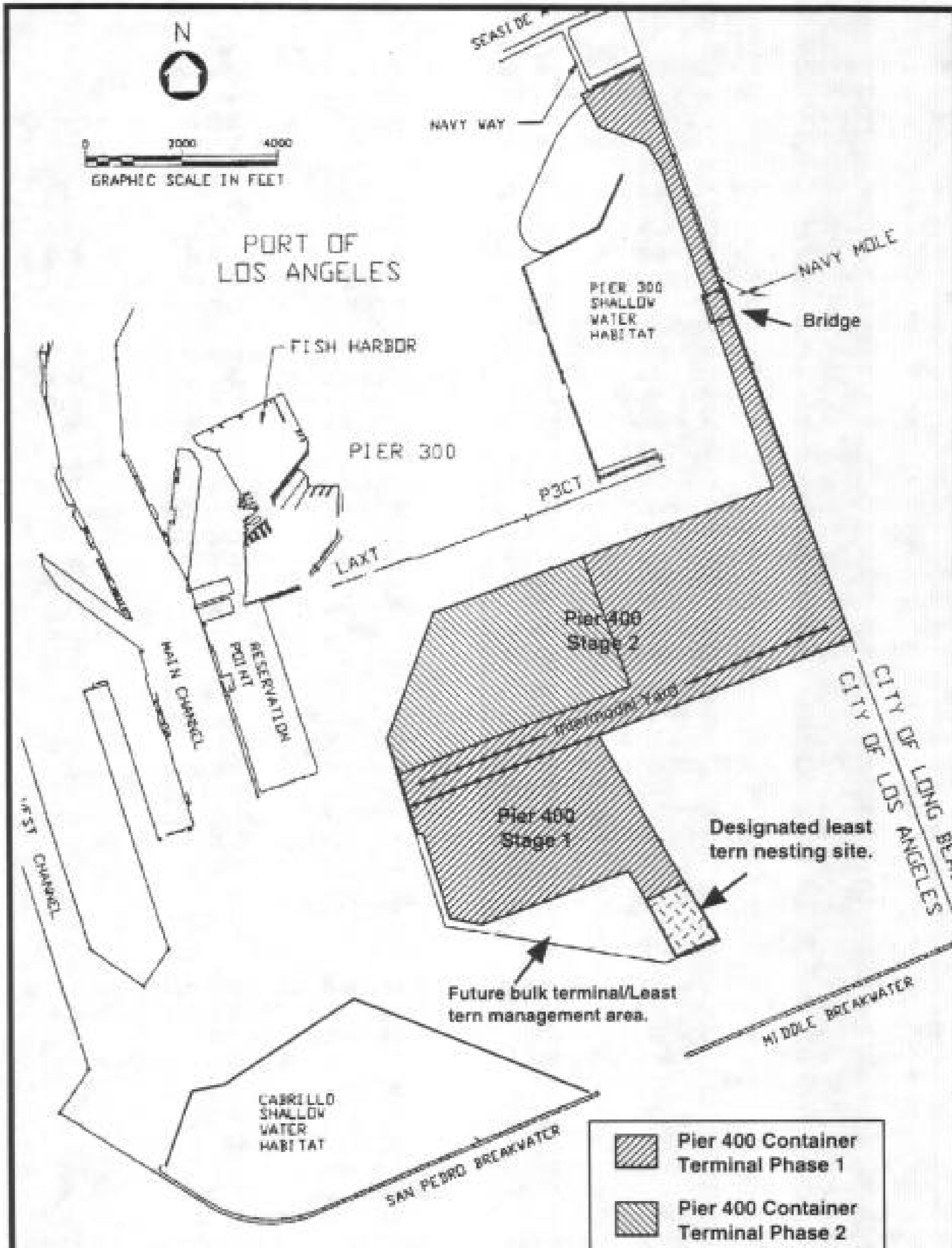


Figure 3.4-4 California Least Tern Nesting Sites - Alternative Design

the latter are more stable, and hence require less use of ballast water. In San Francisco Bay it has been estimated that Panamax vessels each discharge an average of 4,000 metric tons of ballast water into the Bay, whereas post-Panamax vessels each discharge an average of 1,000 metric tons (USACE and Port of Oakland, 1998). Using these figures, a rough estimate is that from several hundred thousand to almost two million metric tons of ballast water would be discharged during Phase 1B, with another 50 percent being discharged during Phase 2B.

Relative to existing (No Project) conditions, Phase 1B could increase vessel calls to San Pedro Bay ports by about 9.5 percent, while Phase 1B and 2B combined could increase vessel calls by about 14 percent. Since container vessels constitute about one-third of the large vessel traffic in San Pedro Bay, and other types of vessels discharge ballast water as well, the relative increase in ballast water discharge that could be attributable to the project is estimated to be on the order of a 2 to 5 percent increase. This is a worst-case scenario. Should the new terminal be occupied by a tenant currently calling at either the Port of Los Angeles or the Port of Long Beach, impacts would then be limited to relocation from one terminal to another by the relocation of ship calls from one terminal to another, and no new impacts to San Pedro Bay would result.

Whether invasive exotic species are discharged in ballast water in the future will depend primarily on the USCG's near-term decisions regarding its proposed regulations (USCG, 1998), on whether more stringent measures are adopted in the long term, and on the development of practicable technologies that could preclude exotic species' survival and transport in ballast water (NRC, 1996). For the purpose of this analysis, it seems reasonable to assume that for at least the next 5 to 10 years, including the initial operation of the Pier 400 Terminal, exotic species will continue to be discharged in ballast water, but probably at a diminishing rate as regulatory action is taken. The identity of these invasive species, and their environmental and economic effects cannot be accurately predicted (Carlton and Geller, 1993).

In contrast to other major areas of maritime commerce, such as Chesapeake Bay and the San Francisco Bay-Delta region, San Pedro Bay does not contain significant estuarine, brackish, or freshwater habitats. Existing marine habitats in San Pedro Bay are largely artificial and have been heavily impacted by port development. These factors limit the potential consequences of exotic species introductions in San Pedro Bay, relative to other locations. Under these circumstances, the relatively small increase or redistribution of ballast water discharge associated with the Pier 400 project is considered insignificant as a potential source of invasive exotic species.

3.4.6 IMPACTS OF THE GAP CLOSURE ALTERNATIVE

3.4.6.1 Project Construction

The closure of the gap has the potential to affect the general marine resources of the Shallow Water Habitat and the Seaplane Lagoon as well as its use as a foraging location for the endangered California least tern. Impact of the gap closure to biota and habitats would be the same for both the Proposed Project and Alternative Design. Consequently, the following discussion covers both alternatives.

General Marine Resources

Filling of the gap in the access corridor would result in the loss of approximately 2.7 acres of shallow water (measured at +4.8' MLLW) and is considered a significant impact. Filling of the gap could also result in localized turbidity in the Shallow Water Habitat. Since rock dike would completely enclose the area being filled, and the filling would be of very short duration, effects of turbidity on general marine resources would be temporary and insignificant.

Gap closure may also effect the biota of the shallow water areas to the east of the Transportation Corridor due to modification of water circulation patterns and water quality parameters. In order to extrapolate what effects closure of the gap might have on the biological characteristics of the Shallow Water Habitat and Seaplane Lagoon, water quality modeling was conducted (WES, 1998). A summary of the results of the hydrodynamic and numeric modeling are contained in Appendix D. Results of the hydrodynamic model indicate that: 1) flow velocities in the area modeled are small; 2) flows are wind dominated; 3) the influence of the gap and the Seaplane Lagoon breakwater on water velocities is localized; and 3) that removal of the Seaplane Lagoon breakwater would increase circulation in the Seaplane Lagoon. Results of the water quality model indicate that: 1) the rate of tracer dissipation was fastest with the gap open and slowest with the gap closed and the Seaplane Lagoon breakwater left in place; 2) the tracer migrated eastward through the gap with the gap open, but migrated south westerly and into the Los Angeles Inner Harbor with the gap closed; and 3) dissolved oxygen ranged from 5 to 8 ppm under all modeled conditions and was lowest (and temperature highest) with the gap closed and the Seaplane Lagoon breakwater left in place.

While the modeling did not show any significant reductions in water quality parameters it is possible that there would be some incremental degradation of the biological resources of the area as a result of changes in water circulation. Removal of the Seaplane Lagoon breakwater would help ameliorate this effect. The consensus among the resource agencies (USFWS, NMFS and CDFG) was that the reduction of the value to some components would never exceed 25 percent of the existing value. Therefore, a 25 percent reduction is assumed as a conservative estimate of the possible impact to marine resources of the area to the East of the Access Corridor. Since the Seaplane Lagoon and Pier 300 Shallow Water Habitat area encompass 273 acres, this would equate to a loss of approximately 68 acres (273 x 0.25 = 68) of outer harbor shallow water.

Endangered Species

The California least tern is known to forage in the Pier 300 Shallow Water Habitat and in the Seaplane Lagoon (MEC, 1988a; KBC, 1998b & 1999) where its primary food is anchovies and topsmelt (MEC, 1988b). It seems unlikely that closure of the gap will directly reduce the numbers of either of these forage species in the shallow waters to the west of the access corridor. Turbidity in the shallow waters to the east of the Transportation Corridor resulting from the construction of the 2.7-acre fill might reduce the ability of terns to forage in the immediate area if this occurred during the tern nesting season.

3.4.6.2 Project Operation

Operations for the Proposed Project and the Alternative Design would not change as a result of gap closure.

3.4.7 MITIGATION MEASURES

The mitigation measures and measures for protection of the California least tern identified below were developed though an Endangered Species Act Section 7 Consultation, with mitigation measures associated with the Deep Draft Navigation Project, through the terms of the 1997 interagency least tern nesting site MOA, and through recent meetings with the U.S. Fish and Wildlife Service, The National Marines Fisheries Service, and the California Department of Fish and Game.

3.4.7.1 Proposed Project

- Meet with USFWS and CDFG annually to define level of protection required for California least tern nesting site in accordance with the nesting site MOA.
- Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.
- Install anti-perching devices on potential predator roosts in project area.
- Provide training and educational materials on endangered, threatened, and protected species to construction workers in the area of Pier 400.

- If any least tern or other protected species nests are found outside the designated nesting area during construction, all work in the vicinity of the nest shall be halted and a qualified biologist shall be notified immediately. An appropriate buffer around the nest shall be established in coordination with the CDFG and the USFWS.

3.4.7.2 Alternative Design

- Meet with USFWS and CDFG annually to define level of protection required for California least tern nesting site in accordance with the nesting site MOA.
- Elevate nesting site per design acceptable to the USFWS and the CDFG.
- Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.
- Install anti-perching devices on potential predator roosts in project area.
- Provide training and educational materials on endangered, threatened, and protected species to construction workers in the area of Pier 400.
- If any least tern or other protected species nests are found outside the designated nesting area during construction, all work in the vicinity of the nest shall be halted and a qualified biologist shall be notified immediately. An appropriate buffer around the nest shall be established in coordination with CDFG and USFWS.
- Design container facility so no high structures (e.g. buildings, stacked containers) are adjacent to the designated nesting site.

3.4.7.3 Gap Closure Alternative

General Marine Resources

- Increase circulation in the Seaplane Lagoon by removal of the Seaplane Lagoon breakwater.
- Replace habitat values lost due to the filling of the 2.7 acre gap in the Pier 400 access corridor by removing the Seaplane Lagoon groin (1.3 acres) and using credits from the Bolsa Chica Mitigation Bank to compensate for the remaining 1.4 acres lost (2.7-1.3 = 1.4).
- In accordance with Measure 4D-1 of the Deep Draft Navigation Project, provide off-site mitigation acceptable to the USFWS, NMFS, and CDFG through existing (e.g. Bolsa Chica Mitigation Bank) or new mitigation agreements to compensate for habitat degradation of the Pier 300 Shallow Water Habitat and Seaplane Lagoon totaling 68 acres of habitat value.

Endangered Species Measures

- Continue with implementation measures 4D-2 through 4D-7 of the Deep Draft Navigation Project as they relate to the proposed activity including: continued adherence to the interagency nesting site agreement (LAHD et. al., 1997), turbidity monitoring and prohibitions during the tern nesting season, and annual tern monitoring.

3.4.8 CUMULATIVE IMPACTS

3.4.8.1 Proposed Project

For the reasons noted above, the project’s contribution to cumulative impacts that may result from the introduction of invasive exotic species in ballast water discharges in San Pedro Bay is not significant. In a larger context, cumulative impacts will depend primarily on actions taken by the U.S. Coast Guard, other national and international agencies, and the shipping industry, to regulate ballast water handling procedures in an equitable manner.

3.4.8.2 Alternative Design

For the reasons noted above, the project's contribution to cumulative impacts that may result from the introduction of invasive exotic species in ballast water discharges in San Pedro Bay is not significant. In a larger context, cumulative impacts will depend primarily on actions taken by the U.S. Coast Guard, other national and international agencies, and the shipping industry, to regulate ballast water handling procedures in an equitable manner.

Construction of a liquid bulk facility together with the Alternative Design could potentially degrade the value of the 15-acre least tern nesting site. The design of this site takes into account development of both facilities. No significant cumulative impact is anticipated.

3.4.8.3 Gap Closure Alternative

For the reasons noted above, the project's contribution to cumulative impacts that may result from the introduction of invasive exotic species in ballast water discharges in San Pedro Bay is not significant. In a larger context, cumulative impacts will depend primarily on actions taken by the U.S. Coast Guard, other national and international agencies, and the shipping industry, to regulate ballast water handling procedures in an equitable manner.

3.4.9 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

3.4.9.1 Proposed Project

No unavoidable significant adverse impacts to biota and habitats would result from the proposed project.

3.4.9.2 Alternative Design

No unavoidable significant adverse impacts to biota and habitats would result from the alternative design.

3.4.9.3 Gap Closure Alternative

No unavoidable significant adverse impacts to biota and habitats would result from the gap closure alternative.

3.4.10 COMPARISON OF ALTERNATIVES

3.4.10.1 Construction Impacts

Both the Proposed Project with Bridged Gap and the Alternative Design with Bridged Gap would have fewer impacts to biota and habitats then would either alternative with a filled gap. Increased impacts are in the area of the shallow water habitat adjacent to Pier 300 and the Pier 400 Transportation Corridor. Impacts would be associated with minor changes in the water circulation pattern and water quality as a result of closure of the gap. Mitigation measures to monitor for and correct any adverse impacts would reduce these impacts to insignificance.

3.4.10.2 Operational Impacts

Operational impacts to biota and habitats would be identical for all identified alternatives.

3.4.11 MITIGATION MONITORING PROGRAM

3.4.11.1 PROPOSED PROJECT

The Mitigation Monitoring Program for Biota and Habitats is shown below in Table 3.4-1.

Table 3.4-1 Mitigation Monitoring Program - Proposed Project

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
Construction activities could significantly impact nesting success of the least tern.	Provide training and educational material to construction workers.	Insignificant	Contractor/LAHD	Prior to construction annually thereafter.
	Unless otherwise approved by the CDFG and USFWS, no impact pile driving shall be allowed along the access corridor during the April to September breeding season of the California least tern.	Insignificant	LAHD	Annually, in September.
	Discontinue construction activities whenever a bird's nest is discovered during the least tern's nesting season (April to September) until cleared in consultation with the CDFG and USFWS.	Insignificant	Contractor/LAHD	Prior to construction annually thereafter.
Operations of the proposed terminal could significantly impact nesting success of the least tern.	Meet with USFWS and CDFG annually to assess status of the least tern nesting site.	Insignificant	LAHD	Prior to startup and annually thereafter.
	Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.	Insignificant	LAHD	Prior to startup and annually thereafter.
	Install anti-perching devices on potential predator roosts in project area.	Insignificant	LAHD	Prior to startup.

3.4.11.2 ALTERNATIVE DESIGN

The Mitigation Monitoring Program for Biota and Habitats is shown below in Table 3.4-2.

Table 3.4-1 Mitigation Monitoring Program - Proposed Project

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
Construction activities could significantly impact nesting success of the least tern.	Provide training and educational material to construction workers.	Insignificant	Contractor/LAHD	Prior to construction annually thereafter.
	Unless otherwise approved by the CDFG and USFWS, no impact pile driving shall be allowed along the access corridor during the April to September breeding season of the California least tern.	Insignificant	LAHD	Annually, in September.
	Discontinue construction activities whenever a bird's nest is discovered during the least tern's nesting season (April to September) until cleared in consultation with the CDFG and USFWS.	Insignificant	Contractor/LAHD	Prior to construction annually thereafter.
Operations of the proposed terminal could significantly impact nesting success of the least tern.	Meet with USFWS and CDFG annually to assess status of the least tern nesting site.	Insignificant	LAHD	Prior to startup and annually thereafter.
	Design lighting system to minimize glare and reduce disruptions to the designated nesting sites.	Insignificant	LAHD	Prior to startup and annually thereafter.
	Install anti-perching devices on potential predator roosts in project area.	Insignificant	LAHD	Prior to startup.
	Elevate designated nesting site in coordination with the USFWS and the CDFG.	Insignificant	LAHD	Prior to startup.

Table 3.4-1 Mitigation Monitoring Program - Proposed Project

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
Operations of the proposed terminal could significantly impact nesting success of the least tern. (cont'd)	Design container facility so no high structures are adjacent to the designated nesting site.	Insignificant	LAHD	Prior to startup.

3.4.11.3 GAP CLOSURE ALTERNATIVE

The Mitigation Monitoring Program for Biota and Habitats is shown below in Table 3.4-3. These measures would be in addition to the measures proposed for the specific terminal design listed in Tables 3.4-1 & 3.4-2.

Table 3.4-1 Mitigation Monitoring Program - Proposed Project

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
Closure of the gap would result in the loss of 2.7 acres of aquatic habitat.	Use of Bolsa Chica Mitigation Bank for replacement of lost habitat.	Insignificant	LAHD	After completion of gap fill construction.
Incremental degradation of biological resources as a result of changes in water circulation following gap closure.	Provide off-site mitigation through existing or new mitigation agreements.	Insignificant	LAHD	Following completion of impact assessment/ negotiation of mitigation agreement(s).
	Remove the Seaplane Lagoon groin.	Insignificant	LAHD	After groin removal.
Construction activities to close the gap could impact foraging success of the least tern.	Unless specifically allowed by the CDFG and USFWS, the LAHD will not allow turbidity from the fill activities to extend into the shallow water habitat to the east of Pier 300 during the April-September breeding season of the California least tern.	Insignificant	LAHD	Annually, in September until gap closure is complete.

3.4.12 IMPACTS FROM PROJECT ALTERNATIVES

3.4.12.1 Proposed Project

The following is a presentation of impacts to biota and habitats that would occur from the construction and operation of the (1) Phases 1A and 2A design operated by separate customers and (2) no project alternatives.

Separate Terminals Alternative

If Pier 400 were to be developed as two separate container terminals, the overall construction and operational impacts would be unchanged from the levels estimated for Phases 1A and 2A combined for the proposed project. The only difference would be that the separate terminals would have two separate entrance/exit plazas.

No-Project Alternative

Under the No-Project Alternative, a container facility would not be developed on the Pier 400 landfill and therefore no construction or operational impacts would occur from this alternative.

3.2.12.2 Alternative Design

The following is a presentation of impacts to biota and habitats that would occur from the no project alternative. Impacts from another alternative (Proposed Project) are addressed above.

No-Project Alternative

Under the No-Project Alternative, a container facility would not be developed on the Pier 400 landfill and therefore no construction or operational impacts would occur from this alternative.

3.5 Noise and Vibration

3.5.1 INTRODUCTION

The following section includes descriptions of the Naval and Marine Corps Reserve Center (NMCRC, considered to be a sensitive receptor), predicted impacts of the proposed action, cumulative impacts of the proposed action and other projects in the region, and mitigations that would lessen significant impacts in the area of noise and vibration.

3.5.1.1 Data Sources

Additional information specific for this project is contained in special studies prepared for the Los Angeles Harbor Department by Science Applications International Corporation (SAIC, 1999a & 1999b).

3.5.2 ENVIRONMENTAL SETTING

3.5.2.1 Description of Resource

Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 3.5-1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 3.5-2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called Leq. The most common averaging period is hourly, but Leq can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Table 3.5-1. Definition of Acoustical Terms

Term	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, Ldn	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Lmax, Lmin	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level, CNEL, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The Day/Night Average Sound Level, Ldn, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

Table 3.5-2. Typical Sound Levels Measured in the Environment and Industry

At a Given Distance from Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		
Jet Takeoff (200')	120		Pain Threshold
	110	Rock Music Concert	
Diesel Pile Driver (100')	100		Very Loud
Freight Cars (50') Pneumatic Drill (50') Freeway (100')	90	Boiler Room Printing Press Plant	
Vacuum Cleaner (10')	80		
	70	In Kitchen with Garbage Disposal Running	Moderately Loud
Light Traffic (100') Large Transformer (200')	60	Data Processing Center	
	50	Department Store	
	40	Private Business Office	Quiet
Soft Whisper (5')			
	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA Ldn. Typically, the highest steady traffic noise level during the daytime is about equal to the Ldn and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA Ldn with open windows and 65-70 dBA Ldn if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The Ldn as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA Ldn. At an Ldn of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the Ldn increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. There is, therefore, an increase of about 1 percent per dBA between an Ldn of 60-70 dBA. Between an Ldn of 70-80 dBA, each decibel increase increases by about 2 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the Ldn is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 3 percent increase in the percentage of the population highly annoyed.

Vibration

Vibrations generated by trains and other transportation systems can be annoying to persons along the alignment. Vibration levels associated with slow speed train passbys would be substantially below architectural or structural damage thresholds. Both the level (or amplitude) and frequency of the vibration affect the potential impact the vibration could cause. In this report, the vibration spectrum is presented in terms of the root mean square (RMS) velocity level in decibels re 10^{-6} inch (or 1 micro-inch) per second. The decibel scale, which is commonly used in noise studies, is also a convenient scale for depicting vibration levels (VdB). The velocity is used in this report because it has been found to correlate well with building motion and people's perception of vibration.

The amount of vibration which is imparted into the ground is a function of the speed and weight of the train, the roundness of the wheels, the type of track, and the presence of switches. The distance one is from the tracks is an important factor in determining anticipated vibration levels. The rate of dissipation of vibration into the ground varies, depending upon the characteristics of the ground. Typical attenuation rates measured by researchers have ranged from 3 to 10 dB per doubling of distance. The vibration velocity varies with the speed of the train at a rate roughly proportional to 6 dB per doubling or halving of the speed of the train.

Another important factor in assessing the potential impacts of ground vibration is how the energy is transferred from the ground into the building of concern. There is not a reliable base of data to determine how the coupling of the building to ground will affect how the vibration levels are attenuated or amplified. In this study, it is assumed that vibration levels measured on the ground adjacent to the structure of concern represent the potential exposure of people to vibration levels.

3.5.2.2 Existing Conditions

Noise

The NMCRC is located in the southeast quadrant of the intersection of Navy Way and Seaside Avenue on Terminal Island. Existing noise sources affecting the site include truck and automobile traffic on Navy Way and Seaside Avenue. Navy Way and Seaside Avenue are elevated about 30 feet above the grade of the NMCRC. As a result of the elevated roadway sections, truck traffic on northbound Navy Way and eastbound Seaside Avenue are the most significant noise sources. Existing noise levels were measured outside and inside the NMCRC building and outside the old Commissary Building on Wednesday and Thursday, November 4 and 5, 1998. A Larson-Davis Laboratories Model 700 integrating sound level meter fitted with a Bruel & Kjaer 4166 pre-polarized condenser microphone fitted with a wind screen was used. The meter was calibrated before and after the survey with an acoustical calibrator. The measurements were 10 or 15 minutes in duration. The measurement locations are shown on Figure 3.5-1, which also shows the relationship of the NMCRC buildings to the existing roadways and the proposed roadway connectors and railroad track. The measured data are summarized in Table 3.5-3.

Table 3.5-3. Existing Noise Levels at the NMCRC, November 4-5, 1998

		A-Weighted Noise Level (dBA)				
Location	Date/Time	Leq	L01	L10	L50	L90
N1) Outside Navy Way facade,	11-4-98/1:21 p.m.	64	73	67	62	57
5 feet above ground	11-4-98/1:40 p.m.	65	75	69	63	58
N2) Front lawn near flag pole	11-4-98/2:33 p.m.	64	72	68	63	57
	11-5-98/11:00 a.m.	62	69	66	61	56
N3) N.W. corner of old	11-4-98/3:40 p.m.	63	68	66	63	61
Commissary	11-5-98/11:32 a.m.	63	68	65	63	59
N4) S.E. corner of old	11-4-98/3:08 p.m.	57	63	59	56	53
Commissary	11-5-89/12:24 p.m.	59	70	60	55	53
N5) East of NMCRC Bldg.;	11-4-98/2:49 p.m.	62	70	64	61	56
near Seaside Ave.	11-5-98/11:16 a.m.	60	67	64	59	54
N6) Inside Classroom 211						
Windows Closed	11-4-98/2:49 p.m.	46	51	47	45	44
Windows Open	11-4-98/2:12 p.m.	53	59	55	52	48
N7) Inside Classroom 221						
Windows Closed	11-4-98/2:22 p.m.	46	55	48	44	41

Notes: 1 All measurements approximately 10 minutes to 15 minutes in duration.
2 Leq - The average A-weighted noise level during the measurement period.
3 L01, L10, L50, L90 - The A-weighted noise levels that are exceeded 01, 10, 50, and 90 percent during the measurement period.

Location N1 was about 5 feet outside the Navy Way facade of the NMCRC building and 5 feet above the ground. Truck traffic on Navy Way and Seaside Avenue both contributed to measured noise levels at this location. Average noise levels (Leq) at this location were 64 dBA to 66 dBA during the afternoon measurements. Most trucks on Navy Way generated maximum instantaneous noise levels of 64 to 69 dBA with the highest noise levels generated by trucks as they made a right turn onto Seaside Avenue. Trucks on Seaside Avenue typically generated maximum noise levels of 61 dBA to 67 dBA.

Measurement Location N2 was on the front lawn of the NMCRC building near the flagpole about 100 feet from the edge of the Navy Way structure. Trucks on Navy Way were the dominant noise sources at this location. Average noise levels (Leq) at this location ranged from 62 dBA to 64 dBA during the late morning and mid afternoon measurements. Most trucks on Navy Way

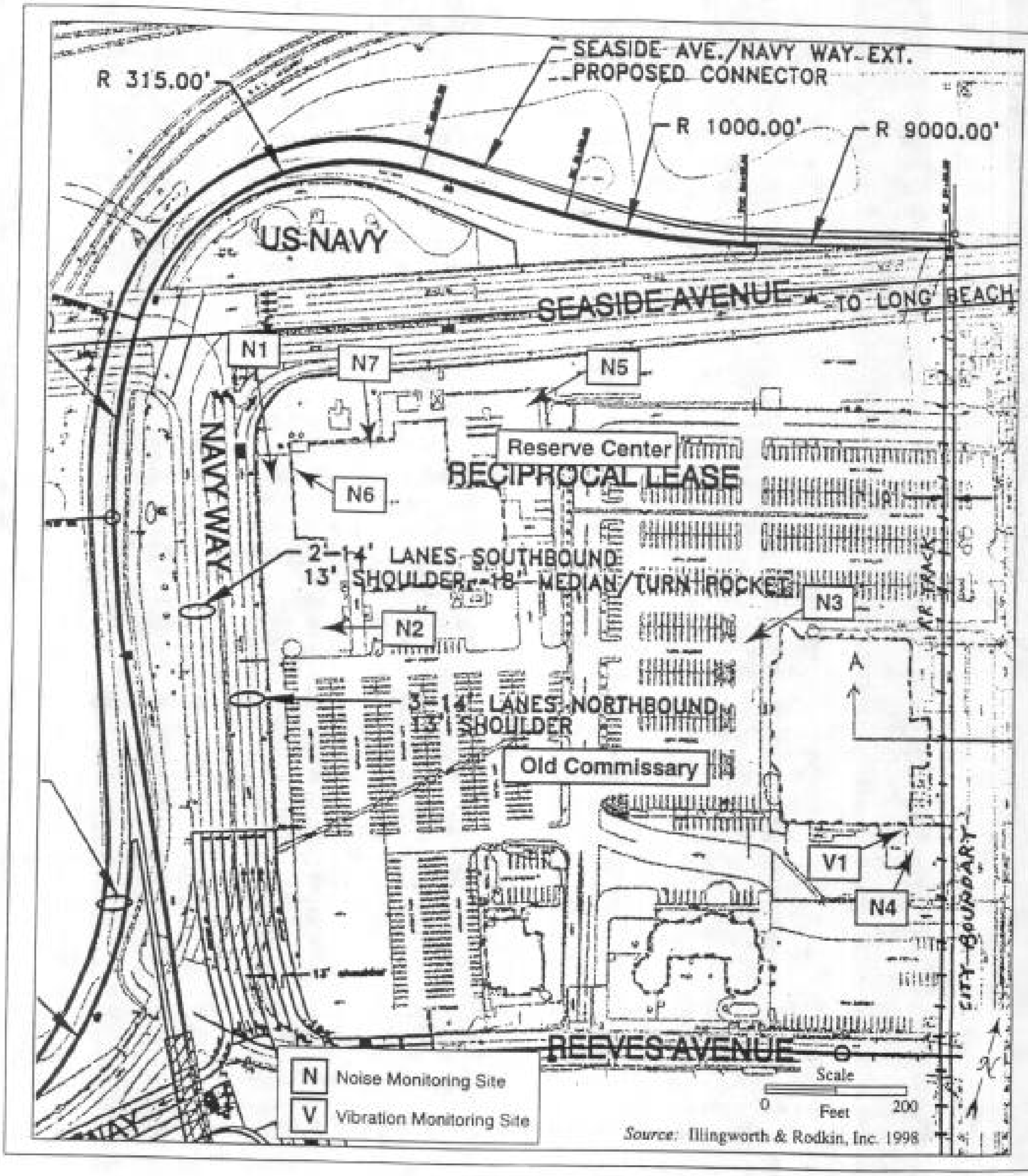


Figure 3.5-1 Ambient Noise and Vibration Monitoring Sites

generated maximum instantaneous noise levels ranging from 63 dBA to 73 dBA. Heavy truck traffic was observed during the afternoon measurement when the trucks were lined up all the way along Navy Way.

Measurement Location N3 was at the northwest corner of the old Commissary Building near the front doors. The average noise level (Leq) during each measurement was 63 dBA. Truck traffic on Seaside Avenue generated maximum noise levels of 65 dBA to 68 dBA. Trucks on Navy Way contributed to a lesser degree. Heavy truck traffic was observed during the measurement.

Measurement Location N4 was outside the southeast corner of the old Commissary Building. Average noise levels (Leq) at this location ranged from 57 dBA to 59 dBA. The noise environment resulted mostly from distant traffic on Navy Way and Seaside Avenue. Local construction traffic on the adjacent roadway also contributed.

Measurement Location N5 was east of the NMCRC building opposite the north facade of the building. Average noise levels (Leq) at this location ranged from 60 dBA to 62 dBA during the mid-afternoon and late morning measurements. This location was about 100 feet from the Seaside Avenue structure. Most trucks on Seaside Avenue generated maximum instantaneous noise levels of 62 dBA to 67 dBA.

Measurement Location N6 was inside classroom 209/211 located on the second floor of the building adjacent to Navy Way. The facade of this room is largely glass, consisting of fixed glass with a row of hopper-type projection windows. Measurements were made inside with all windows closed and all windows open. The ventilating system generated a steady noise level of about 45 dBA. The average noise level with the windows closed was 46 dBA during the afternoon measurement. Maximum noise levels from individual trucks on Navy Way typically ranged from 45 dBA to 47 dBA with the windows closed. The loudest truck generated a noise level of 51 dBA. With the windows open, the average level was 53 dBA. Trucks typically generated maximum instantaneous noise levels ranging from 53 dBA to 59 dBA.

Measurement Location N7 was inside classroom 221/223 located on the second floor of the building facade facing Seaside Avenue. Interior noise levels within this classroom were measured with the windows closed. The average noise level was again 46 dBA. Maximum noise levels from trucks were typically in the same range of 45 dBA to 50 dBA. Two loud trucks generated instantaneous maximum levels of 53 dBA and 54 dBA.

Noise levels were monitored outside and inside the NMCRC building in 1994 (LAHD, 1994), prior to the reconfiguration of Seaside Avenue and Navy Way. A comparison of the data was made. The comparison demonstrates that average and maximum noise levels were lower during the current 1998 measurements than during the 1994 measurements both outside and inside the building.

Vibration

Ambient vibration measurements were monitored adjacent to the southeast corner of the old Commissary Building during the afternoon of November 4, 1998. Vibration measurements were conducted with a Bruel & Kjaer accelerometer attached to a Larson-Davis Laboratories Model 3100 real-time analyzer. The monitoring system was calibrated before and after the monitoring survey. The average ambient vibration level monitored was 56 VdB re 1 micro-inch per second. This is an insignificant vibration level, which is typical away from significant vibration sources.

3.5.2.3 Regulatory Setting

Construction Noise Regulations

Section 41.40 of the Los Angeles Municipal Code (LAMC, 1990) exempts construction-generated noise from noise abatement criteria between the hours of 7:00 a.m. and 9:00 p.m. However, even during these hours Section 112.05 of the LAMC limits construction noise to a maximum of 75-dBA at a distance of 50 feet. If project construction occurs at night, noise levels measured at nearby sensitive receivers must meet the requirements set forth in Section 41.40.

Operational Noise Regulations

Section 65302(f) of the California Administrative Code requires that all counties and cities in California adopt a Noise Element for their General Plan. Local goals and standards are set forth in the Noise Elements of each jurisdiction. The City of Los Angeles guidelines for land use compatibility and community noise environments are based on CNEL (or Ldn) values. The City of Los Angeles' Noise Element of the General Plan states that the maximum normally acceptable exterior noise level for residential land uses is 65 CNEL. Maximum normally acceptable noise levels for commercial and industrial land uses are 75 CNEL and 80 CNEL, respectively.

The NMCRC is an administrative and educational facility. The primary noise sensitive area is the main building. The building is used for administrative functions on the ground floor and education on the second floor. Outdoor areas are used for training by the Navy, Marine Corps, and local agencies. The facility is only used during the daytime. A 24-hour weighted average such as CNEL is not the best noise metric for this land use. An appropriate metric is the A-weighted hourly average noise level, represented by the Leq. The applicable criterion to minimize speech interference in noise sensitive areas considered to be functionally equivalent to the City of Los Angeles guidelines for residential uses is an outdoor Leq of 60 dBA.

The Federal Highway Administration (FHA) in Federal Aid Highway Program Manual 7-7-3 defines a traffic noise impact from a new or expanded federally funded roadway to be "impacts which occur when the predicted traffic noise levels approach or exceed the the noise abatement criteria or when the predicted traffic noise levels substantially exceed the existing noise levels" (FHA, 1982). For residential land uses and other sensitive uses, such as schools and parks, the FHA noise abatement criterion is a noisiest hour Leq of 67 dBA.

3.5.3 IMPACT SIGNIFICANCE CRITERIA

3.5.3.1 Noise

Construction

The project is considered to have a significant impact if construction noise levels would substantially exceed existing ambient exterior noise levels at a noise sensitive receptor.

Operations

Project noise impacts would be significant if:

- Existing (ambient) noise levels are raised from below to above the applicable criteria;
- Noise resulting from the project increases average ambient levels which are already above the applicable criteria by more than 3 dBA; or
- Project-generated noise results in a 5-dBA increase and the resulting level remains below the maximum considered normally acceptable or the exterior noise limit.

These criteria for significance recognize:

The threshold levels of acceptability established by the local governmental agencies;

That once the threshold level has been passed, any noticeable change above that level (a 3-dBA increase) results in a further degradation of the noise environment; and

That a clearly noticeable change (a 5-dBA increase) in the noise environment, even though the acceptability threshold has not been reached, is also a significant impact because people will respond to such changes in noise level regardless of the absolute level of the noise.

3.5.3.2 Vibration

The criteria to determine the environmental impact of ground-based vibration is based on the maximum levels for a single event, as developed by the U.S. Department of Transportation Federal Transit Administration (USDOT, 1995). The criteria account for a variation in project types as well as the frequency of events, which differ widely among projects. The criteria distinguish between projects with frequent and infrequent events, where frequent events are defined as more than 70 events per day. The Pier 400 project, with 4 daily train passbys expected during Phase 1A and 8 daily train passbys expected during Phase 2A, falls into the infrequent category. For infrequent events, the significance threshold for the old Commissary Building, assuming future office use, is 83 VdB re 1 micro-inch per second (USDOT, 1995).

3.5.4 IMPACTS OF THE PROPOSED PROJECT

3.5.4.1 Noise

Project Construction

Phase 1A

The road and rail improvements would require grading, filling, and compaction of soils; trenching for ground preparation and for installation of support infrastructure and utilities; paving; and piledriving.

Noise impacts resulting from construction depend upon the noise generated by various pieces of construction equipment, the timing and length of time of noise-generating activities, the distance between the noise-generating activities and the nearby sensitive receptors, and the time of day or night that the construction activities occur. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Major project components which would affect the NMCRC include construction of the rail corridor adjoining the eastern boundary of the facility and construction of the grade separation and reconfiguration of the Terminal Way/Navy Way/Reeves Avenue intersection at the southwest corner of the Naval Facility. Typical noise levels by phase of construction at a reference distance of 50 feet are shown in Table 3.5-4.

Table 3.5-4. Typical Ranges of Energy Equivalent Noise Levels, Leq in dBA, at Construction Sites

	Public Works Roads & Highways, Sewers, and Trenches	
	I	II
Ground Clearing	84	84
Excavation	88	78
Foundations	88	88
Erection	79	78
Finishing	84	84

I - All pertinent equipment present at site.

II - Minimum required equipment present at site.

Source: U.S.EPA, Legal Compilation on Noise, Vol. 1, pg. 2-104, 1973.

Highest noise levels would occur during pile driving required for the proposed grade separation. The nearest noise sensitive buildings on the Naval Facility would be located 400 to 600 feet from the pile driving activity. Maximum instantaneous noise levels from the pile driving would range from 85 to 90 dBA outdoors. Pile driving noise would be clearly audible outside and inside the NMCRC building. General construction noise levels outside existing occupied buildings at the Naval Facility would typically range from about 65 to 70 dBA. General construction noise levels, with the exception of pile driving, would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction of the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2) would occur immediately adjacent to the old Commissary Building. The potential effects upon the old Commissary Building would depend upon its use at the time the construction occurs. The building is a solid block building. Construction activities would not be expected to cause a significant disturbance inside this building, assuming standard maintenance or office uses.

Construction of the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would be separated from the NMCRC and its related facilities by distance and intervening structures (i.e. Navy Way grade separation). Construction noise levels would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction traffic related noise level increases were calculated. Traffic noise levels would increase less than 2 dBA during typical daytime and peak hours. Traffic noise would not increase substantially. Construction noise impacts would be short term and less than significant.

It is recommended that the pile driving schedule be coordinated with the Navy to minimize the potential short-term disturbance which would occur during pile driving. Construction activities are expected to be limited by the Board of Harbor Commissioners primarily to weekdays. Weekdays could have the least impact on classroom activities since they occur primarily on weekends.

Phase 2A

Construction impacts would be limited to the proposed terminal area. Impacts to sensitive noise receptors such as the NMCRC would be minimal. Construction noise would be inaudible above normal background noise levels.

Project Operation

Phases 1A & 2A

Truck. The operation of the Pier 400 Container Terminal during Phase 1A and 2A would generate an increase in truck traffic on the segments of Navy Way and Seaside Avenue adjoining the NMCRC. The increased truck traffic could potentially cause a substantial increase in noise. The transportation corridor project includes a new rail corridor adjacent to the east side of the NMCRC. Railroad trains operating on the new railroad corridor could potentially cause a substantial increase in noise at the NMCRC. This analysis evaluates the significance of these noise level increases. Operational information for the roadways and the rail are based on information developed for the Pier 400 Container Terminal and Transportation Corridor Alternative A Transportation Special Study. The Transportation Study assumed that at the intersection of Seaside Avenue and Navy Way a ramp would be constructed to accommodate the westbound-to-southbound left turns for traffic destined for Pier 300 and other locations on the southwest part of Terminal Island. This ramp would eliminate most of the existing westbound left turns from the Navy/Seaside intersection and reduce the southbound traffic volume at the intersection of Navy Way and Terminal Way, as westbound traffic on Navy Way destined for Pier 300 and southwest Terminal Island would no longer pass through these intersections. However, new traffic destined for the Navy Mole and Pier 400 would pass through these intersections during Phase 1A operations. When Phase 2A operations begin, it is assumed that the westbound-to-southbound ramp would be modified to also provide access to Pier 400 via a grade separation at Terminal Way for the inbound Pier 400 access road. The Transportation Study assumed that a rail corridor would accommodate approximately half the containers moving into and out of Pier 400.

The potential increase in traffic noise at the NMCRC was calculated by comparing existing traffic volumes on the roadway to future traffic volumes during Phase 1A and during Phase 2A.

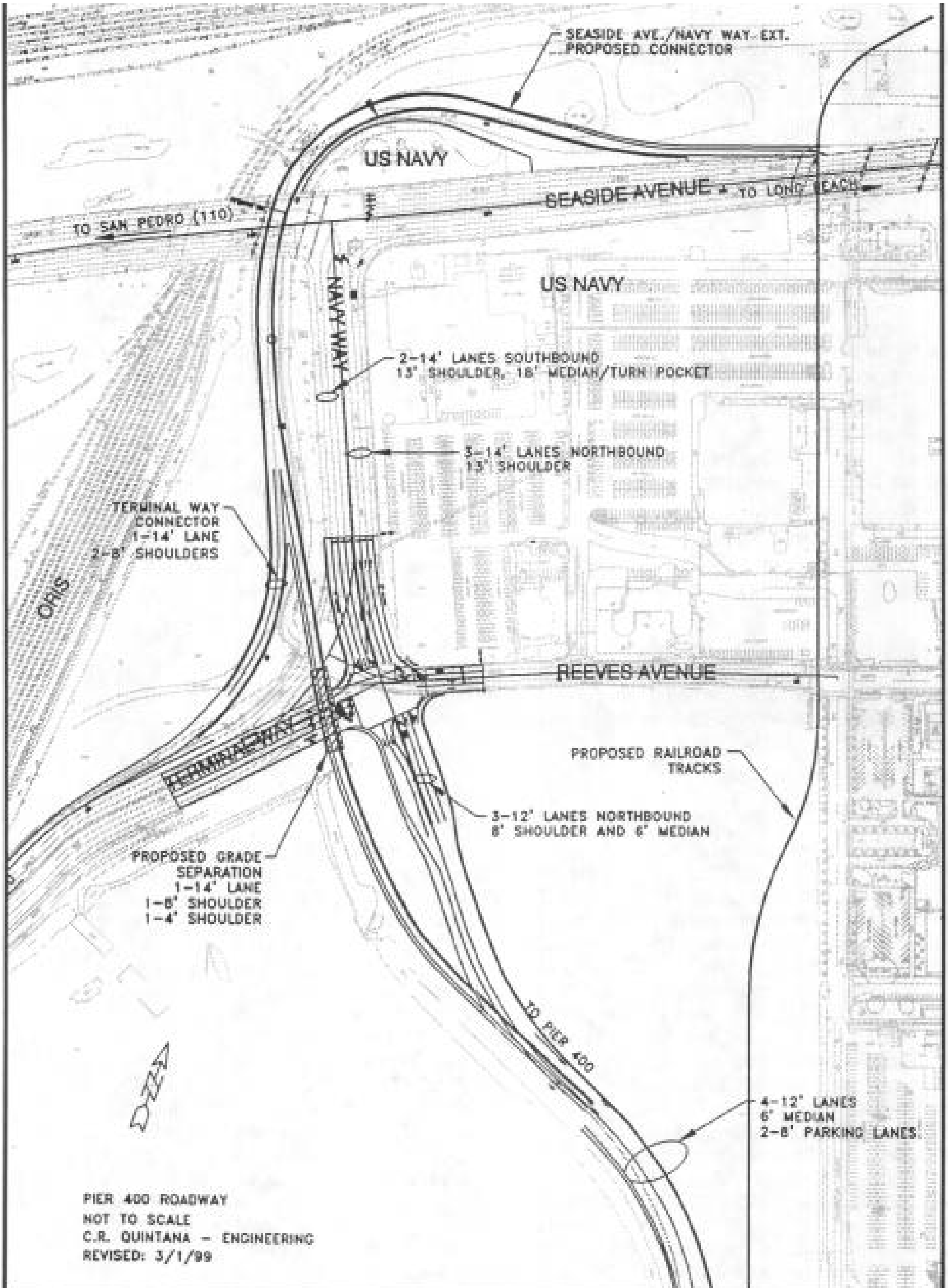


Figure 3.5-2 Pier 400 Transportation Corridor - Navy Mole Overhead Rail Alignment

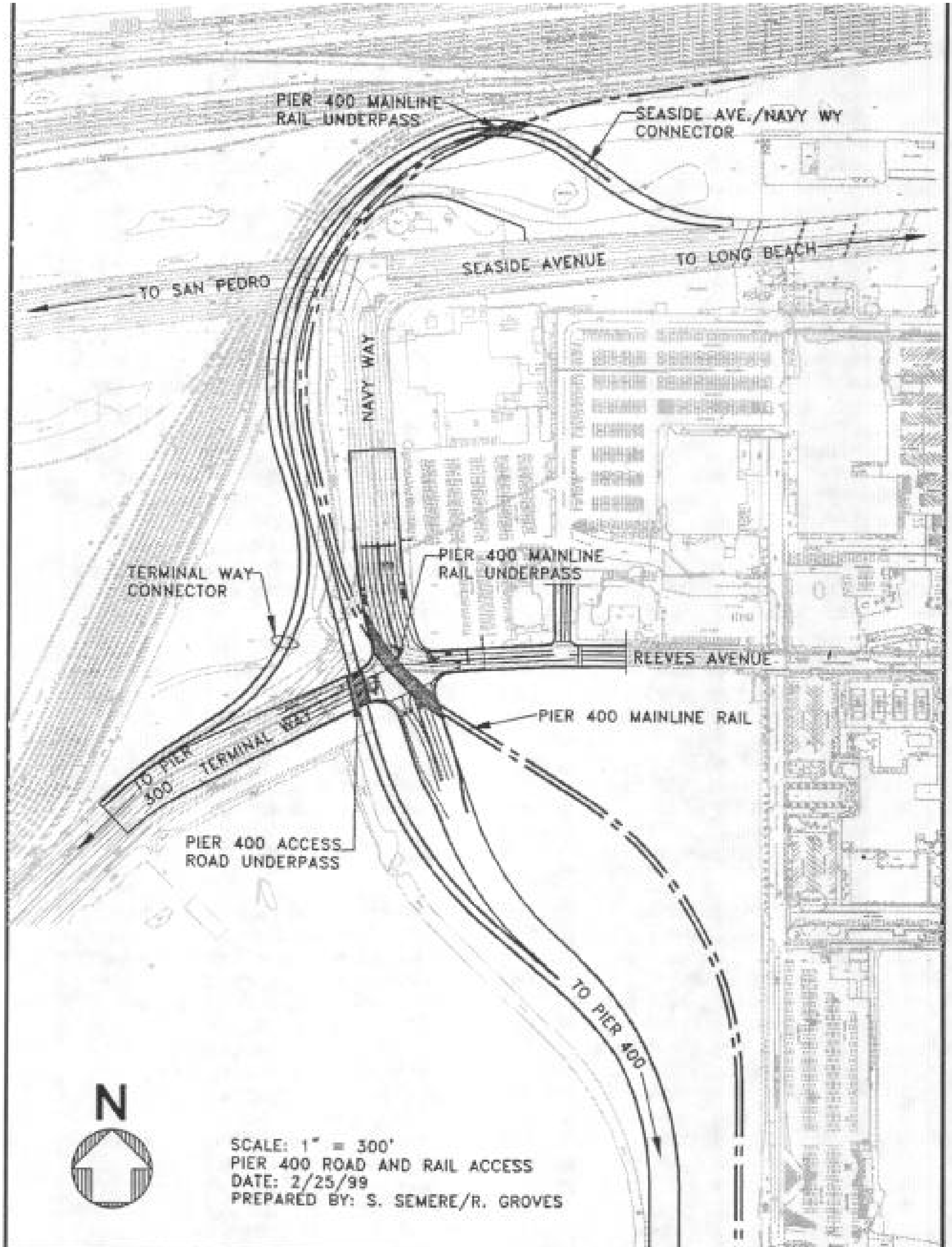


Figure 3.5-3 Pier 400 Transportation Corridor - Navy Way Overhead Rail Alignment

Traffic noise level increases were calculated following Federal Highway Administration (FHA) procedures as outlined in FHWA-RD-77-108 (FHA, 1978). Given the existing roadway configuration, as described in the Setting Section, and assuming the future roadway configuration described above, it was determined that northbound traffic on Navy Way and eastbound traffic on Seaside Avenue would continue to dominate the noise environment at the Naval Base. Proposed changes to the intersections and ramp configurations would not affect these roadway segments. Traffic noise levels at the NMCRC are calculated to increase 2 dBA as a result of traffic from Phase 1A, during the typical daytime hours and during the AM and PM peak hours. A 2 dBA increase is not substantial and would not cause a significant noise impact. Traffic noise levels are calculated to increase 3 dBA when Phase 2A becomes operational. A 3 dBA increase would be substantial and is considered a significant noise impact.

Phase 1A is expected to generate approximately 2,350 vehicles per day on Terminal Island. Compared to 1997 traffic levels (of 83,400 vehicles per day), this is a 3% increase which is expected to raise noise on areal routes by less than one dBA, which would not be discernible. Phase 2A is expected to generate approximately 2,550 vehicles per day on Terminal Island. Compared to 1997 traffic levels (of 83,400 vehicles per day), this is a 3% increase which is expected to raise noise on areal routes by less than one dBA, which would not be discernible. Combined Phases 1A and 2A is expected to generate approximately 4,900 vehicles per day on Terminal Island. Compared to 1997 traffic levels (of 83,400 vehicles per day), this is a 6% increase which is expected to raise noise on areal routes by less than one dBA, which would not be discernible. Additionally, this traffic, once off Terminal Island, would make an even smaller percentage contribution further diminishing this impact. Thus, no significant impact is associated with traffic movement other than at the NMCRC.

Rail. According to the Transportation Study, up to 2 unit trains per day during Phase 1A and 2 additional unit trains during Phase 2A would transport the project intermodal cargo. Four trains would therefore be expected to pass by the NMCRC (2 inbound and 2 outbound) during Phase 1A, and 8 trains (4 inbound and 4 outbound) during Phase 2A. The noise generated by a typical unit train was monitored at a distance of 120 feet by Illingworth & Rodkin, Inc. in August 1995 along B Street in the Wilmington district. The train engines generated a maximum noise level of 77 dBA, which lasted for a duration of approximately 30 seconds, and the cars generated noise levels of 66 dBA to 68 dBA for a duration of approximately 8 minutes. The train was traveling at an estimated speed of 5 to 10 miles per hour. The train horn did not sound during the measurement near the monitoring site. Train horns generate a maximum sound level of approximately 100 dBA at a distance of 100 feet.

Two scenarios are assessed for the Navy Mole Overhead Rail Alignment (see Figure 3.5-2). The first is the build-out of two railroad tracks without any additional structures. The second is the build-out of one railroad track with the addition of a soundwall. From the standpoint of potential noise and vibration impacts, the two scenarios are the same. The primary difference arises in the mitigation of the alternatives. The old Commissary Building is located approximately 24 feet from the centerline of the proposed railroad track at its closest point where the building projects out to the east. The main face of the building would be located approximately 47 feet from the centerline of the railroad track. This is the closest building to the proposed railroad corridor. Maximum noise levels outside the face of this building are predicted to be about 85 dBA as the engines pass by, and about 75 dBA as the cars pass by. A train horn, if sounded just outside the building, could generate a maximum noise level of up to 108 dBA. The ends and side of the building oriented towards and closest to the railroad tracks are block walls. There are openings in the eastern side of the building for truck loading docks and ventilation louvers. The solid block wall would provide about 45 dBA of noise reduction for the train engines, 55 dBA of noise reduction for the railroad car noise, and 60 decibels of noise reduction for the train horn. Maximum interior noise levels, away from the loading docks, are therefore calculated to be less than 50 dBA. Such noise levels would be consistent with maximum noise levels resulting from truck traffic currently experienced in some of the most sensitive spaces at the facility, the classrooms in the NMCRC building. Just inside the building at the loading docks, noise levels would be substantially higher. It is assumed that the interior spaces adjacent to the loading docks are not and would not be noise sensitive spaces within this building in the future. Maximum noise levels from the passage of train engines and train cars, with the exception of the Naval facility immediately adjacent to the railroad tracks, would not be substantially different than traffic noise levels. The noise generated by a train horn sounding adjacent to the Naval Station would substantially exceed existing maximum noise levels resulting from traffic. The sound of the train horn would be considered to be a new and intrusive noise that would cause a potentially significant noise impact at the Naval Station. The hourly average noise level resulting from train passbys, even assuming a maximum of approximately two train passbys in any hour, is calculated to be less than 60 dBA Leq. Hourly average noise levels of less than 60 dBA Leq would not cause a substantial increase in noise at the NMCRC.

For the Navy Way Overhead Rail Alignment (see Figure 3.5-3) noise levels would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

3.5.4.2 Vibration

Construction

Phases 1A & 2A

There are no vibratory sources close enough or strong enough to impact any sensitive receptors during construction.

Operation

Phases 1A & 2A

The vibration impact assessment is based on single events. The impact for Phases 1A and Phase 2A is, therefore, the same. Train vibration was monitored on November 5, 1998 at a distance of approximately 24 feet from the railroad tracks, south of the Badger Avenue Bridge. The speed of the train passby during the vibration measurement was 5 to 10 miles per hour, the same speed expected for trains that would pass by the NMCRC. The track was continuously welded track, the same type of track proposed for the Pier 400 transportation corridor. The train was a double-stacked container unit train approaching Pier 300. As the train passed, maximum vibration levels were monitored. The maximum levels ranged from a high of 82 VdB when the last of the engines passed the monitoring point down to a typical level of about 69 VdB as the railroad cars passed the monitoring location.

As discussed in the Noise Section, the main structure of the old commissary building would be located about 47 feet from the Navy Mole Overhead Rail Alignment (see Figure 3.5-2). At a distance of 47 feet, typical vibration levels would be below 80 VdB. The impact of train vibration is less than significant. No measurable impacts are expected from the Navy Way Overhead Rail Alignment (see Figure 3.5-3).

3.5.5 IMPACTS OF THE ALTERNATIVE DESIGN

3.5.5.1 Noise

Project Construction

Phase 1B

The road and rail improvements would require grading, filling, and compaction of soils; trenching for ground preparation and for installation of support infrastructure and utilities; paving; and piledriving.

Noise impacts resulting from construction depend upon the noise generated by various pieces of construction equipment, the timing and length of time of noise-generating activities, the distance between the noise-generating activities and the nearby sensitive receptors, and the time of day or night that the construction activities occur. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Major project components which would affect the NMCRC include construction of the rail corridor adjoining the eastern boundary of the facility and construction of the grade separation and reconfiguration of the Terminal Way/Navy Way/Reeves Avenue intersection at the southwest corner of the Naval Facility. Typical noise levels by phase of construction at a reference distance of 50 feet are shown in Table 3.5-4.

Highest noise levels would occur during piledriving required for the proposed grade separation. Nearest noise sensitive buildings on the Naval Facility would be located 400 to 600 feet from the piledriving activity. Maximum instantaneous noise levels from the piledriving would range from 85 to 90 dBA outdoors. Piledriving noise would be clearly audible outside and inside the NMCRC buildings. General construction noise levels outside existing occupied buildings at the Naval Facility would typically range from about 65 to 70 dBA. General construction noise levels, with the exception of the piledriving, would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction of the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2) would occur immediately adjacent to the old Commissary Building. The potential effects upon the old Commissary Building would depend upon its use at the time the construction occurs. The building is a solid block building. Construction activities would not be expected to cause a significant disturbance inside this building, assuming standard maintenance or office uses.

Construction of the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would be separated from the NMCRC and its related facilities by distance and intervening structures (i.e. Navy Way grade separation). Construction noise levels would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction traffic related noise level increases were calculated. Traffic noise levels would increase less than 2 dBA during typical daytime and peak hours. Traffic noise would not increase substantially. Construction noise impacts would be short term and less than significant.

It is recommended that the piledriving schedule be coordinated with the Navy to minimize the potential short-term disturbance which would occur during piledriving. Construction activities are expected to be limited primarily to weekdays. Weekdays could have the least impact on classroom activities since they occur primarily on weekends.

Phase 2B

Construction impacts would be limited to the proposed terminal area. Impacts to sensitive noise receptors such as the NMCRC would be minimal. Construction noise would be inaudible above normal background noise levels.

Project Operation

Phases 1B & 2B

Truck. The operation of the Pier 400 Container Terminal during Phases 1B and 2B would generate an increase in truck traffic on the segments of Navy Way and Seaside Avenue adjoining the NMCRC. The increased truck traffic could potentially cause a substantial increase in noise. The transportation corridor project includes a new rail corridor adjacent to the east side of the NMCRC. Railroad trains operating on the new railroad corridor could potentially cause a substantial increase in noise at the NMCRC. This analysis evaluates the significance of these noise level increases. Operational information for the roadways and the rail are based on information developed for the Pier 400 Container Terminal and Transportation Corridor Alternative B Transportation Special Study. The Transportation Study assumed that a ramp would be constructed at the intersection of Seaside Avenue and Navy Way to accommodate the westbound-to-southbound left turns for traffic destined for Pier 300 and other locations on the southwest part of Terminal Island. This ramp would eliminate most of the existing westbound left turns from the Navy/Seaside intersection and would reduce the southbound traffic volume at the intersection of Navy Way and Terminal Way as westbound traffic on Navy Way destined for Pier 300 and southwest Terminal Island would no longer pass through these intersections. New traffic destined for the Navy Mole and Pier 400 would, however, pass through these intersections during Phase 1B operations. When Phase 2B operations begin, it has been assumed that the westbound-to-southbound ramp would be modified to also provide access to Pier 400 via a grade separation at Terminal Way for the inbound Pier 400 access road. The Transportation Study assumed that the proposed rail corridor would accommodate approximately half the containers moving into and out of Pier 400.

The potential increase in traffic noise at the NMCRC was calculated by comparing existing traffic volumes on the roadway to future traffic volumes during Phases 1B and 2B. Traffic noise level increases were calculated following Federal Highway Administration (FHA) procedures as outlined in FHWA-RD-77-108 (FHA, 1978). Given the existing roadway configuration, as described in the Setting Section, and assuming the future roadway configuration described above, it was determined that northbound traffic on Navy Way and eastbound traffic on Seaside Avenue would continue to dominate the noise environment at the Naval Base. Proposed changes to the intersections and ramp configurations would not affect these roadway segments. Traffic noise levels at the NMCRC are calculated to increase 4 dBA as a result of traffic from Phase 1B, during the typical daytime hours and during the a.m. and p.m. peak hours. A 4 dBA increase is substantial and would cause a significant noise impact. Traffic noise levels are calculated to increase 5 dBA when Phase 2B becomes operational. A 5 dBA increase would be substantial and is considered a significant noise impact.

Phase 1B is expected to generate approximately 4,330 vehicles per day on Terminal Island. Compared to 1997 traffic levels (of 83,400 vehicles per day), this is a 5% increase which is expected to raise noise on areal routes by less than one dBA, which would not be discernible. Phase 2B is expected to generate approximately 2,170 vehicles per day on Terminal Island. Compared to 1997 traffic levels (of 83,400 vehicles per day), this is a 3% increase which is expected to raise noise on areal routes by less than one dBA, which would not be discernible. Combined Phases 1B and 2B is expected to generate approximately 6,500 vehicles per day on Terminal Island. Compared to 1997 traffic levels (of 83,400 vehicles per day), this is a 8% increase which is expected to raise noise on areal routes by less than one dBA, which would not be discernible. Additionally, this traffic, once off Terminal Island, would make an even smaller percentage contribution further diminishing this impact. Thus, no significant impact is associated with traffic movement other than at the NMCRC.

Rail. According to the Transportation Study, up to 4 unit trains per day during Phase 1B and 2 additional unit trains during Phase 2B would transport the project intermodal cargo. Eight trains would therefore be expected to pass by the NMCRC (4 inbound and 4 outbound) during Phase 1B, and 12 trains (6 inbound and 6 outbound) during Phase 2B. The noise generated by a typical unit train was monitored at a distance of 120 feet by Illingworth & Rodkin, Inc. in August 1995 along B Street in the Wilmington district. The train engines generated a maximum noise level of 77 dBA, which lasted for a duration of approximately 30 seconds, and the cars generated noise levels of 66 dBA to 68 dBA for a duration of approximately 8 minutes. The train was traveling at an estimated speed of 5 to 10 miles per hour. The train horn did not sound during the measurement near the monitoring site. Train horns generate a maximum sound level of approximately 100 dBA at a distance of 100 feet.

Two scenarios are assessed for the Navy Mole Overhead Rail Alignment (see Figure 3.5-2). The first is the build-out of two railroad tracks without any additional structures. The second is the build-out of one railroad track with the addition of a soundwall. From the standpoint of potential noise and vibration impacts, the two scenarios are the same. The primary difference arises in the mitigation of the alternatives. The old Commissary Building is located approximately 24 feet from the centerline of the proposed railroad track at its closest point where the building projects out to the east. The main face of the building would be located approximately 47 feet from the centerline of the railroad track. This is the closest building to the proposed railroad corridor. Maximum noise levels outside the face of this building are predicted to be about 85 dBA as the engines pass by, and about 75 dBA as the cars pass by. A train horn, if sounded just outside the building, could generate a maximum noise level of up to 108 dBA. The ends and side of the building oriented towards and closest to the railroad tracks are block walls. There are openings in the eastern side of the building for truck loading docks and ventilation louvers. The solid block wall would provide about 45 dBA of noise reduction for the train engines, 55 dBA of noise reduction for the railroad car noise, and 60 decibels of noise reduction for the train horn. Maximum interior noise levels, away from the loading docks, are therefore calculated to be less than 50 dBA. Such noise levels would be consistent with maximum noise levels resulting from truck traffic currently experienced in some of the most sensitive spaces at the facility, the classrooms in the NMCRC building. Just inside the building at the loading docks, noise levels would be substantially higher. It is assumed that the interior spaces adjacent to the loading docks are not and would not be noise sensitive spaces within this building in the future. Maximum noise levels from the passage of train engines and train cars, with the exception of the Naval facility immediately adjacent to the railroad tracks, would not be substantially different than traffic noise levels. The noise generated by a train horn sounding adjacent to the Naval Station would substantially exceed existing maximum noise levels resulting from traffic. The sound of the train horn would be considered to be a new and intrusive noise that would cause a potentially significant noise impact at the Naval Station. The hourly average noise level resulting from train passbys, even assuming a maximum of approximately two train passbys in any hour, is calculated to be less than 60 dBA Leq. Hourly average noise levels of less than 60 dBA Leq would not cause a substantial increase in noise at the NMCRC.

For the Navy Way Overhead Rail Alignment (see Figure 3.5-3) noise levels would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

3.5.5.2 Vibration

Construction

Phases 1B & 2B

There are no vibratory sources close enough or strong enough to impact any sensitive receptors during construction.

Operation

Phases 1B & 2B

The vibration impact assessment is based on single events. The impacts for Phases 1B and 2B are therefore the same. Train vibration was monitored on November 5, 1998 at a distance of approximately 24 feet from the railroad tracks, south of the Badger Avenue Bridge. The speed of the train passby during the vibration measurement was 5 to 10 miles per hour, the same speed expected passed the NMCRC. The track was continuously welded track, the same type of track proposed for the Pier 400 transportation corridor. The train was a double-stacked container unit train destined for Pier 300. As the train passed, maximum vibration levels were monitored. The maximum levels ranged from a high of 82 VdB when the last of the engines passed the monitoring point down to a typical level of about 69 VdB as the railroad cars passed the monitoring location.

As discussed in the Noise Section, the main structure of the old commissary building would be located about 47 feet from the Navy Mole Overhead Rail Alignment (see Figure 3.5-2). At a distance of 47 feet, typical vibration levels would be below 80 VdB. The impact of train vibration is less than significant. No measurable impacts are expected from the Navy Way Overhead Rail Alignment (see Figure 3.5-3).

3.5.6 GAP CLOSURE ALTERNATIVE

Filling the gap as opposed to bridging the gap will not change any other aspect of the terminal's design. The design of the remainder of the Pier 400 Transportation Corridor and the Pier 400 Backlands areas will not be affected by selection of this alternative. Consequently, the only impact assessment that would be effected by selecting this alternative would be construction noise impacts during Phase 1, that phase during which the actual bridge or constructed fill would be built. Discussion in this section will be limited to Phase 1 construction noise impacts only. Please refer back to previous sections for Phase 1 vibration impacts (3.5.4.2 or 3.5.5.2), Phase 2 construction impacts (3.5.4.1 or 3.5.5.1) and all operational impacts (3.5.4.1 or 3.5.5.1).

3.5.6.1 Proposed Project with Gap Closure

Construction

Proposed Project - Phase 1A

Noise impacts would be reduced from the bridged-gap alternatives. The reduction would be due to elimination of pile driving activities connected with construction of a bridge across the gap. Filling in the gap would eliminate all bridge- construction activities including pile driving.

The road and rail improvements would require grading, filling, and compaction of soils; trenching for ground preparation and for installation of support infrastructure and utilities; and paving.

Noise impacts resulting from construction depend upon the noise generated by various pieces of construction equipment, the timing and length of time of noise-generating activities, the distance between the noise-generating activities and the nearby sensitive receptors, and the time of day or night that the construction activities occur. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Major project components which would affect the NMCRC include construction of the rail corridor and construction of the grade separation and reconfiguration of the Terminal Way/Navy Way/Reeves Avenue intersection at the southwest corner of the Naval Facility. Typical noise levels by phase of construction at a reference distance of 50 feet are shown in Table 3.5-4.

General construction noise levels outside existing occupied buildings at the Naval Facility would typically range from about 65 to 70 dBA. General construction noise levels, with the exception of pile driving, would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction of the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2) would occur immediately adjacent to the old Commissary Building. The potential effects upon the old Commissary Building would depend upon its use at the time the construction occurs. The building is a solid block building. Construction activities would not be expected to cause a significant disturbance inside this building, assuming standard maintenance or office uses.

Construction of the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would be separated from the NMCRC and its related facilities by distance and intervening structures (i.e. Navy Way grade separation). Construction noise levels would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction traffic related noise level increases were calculated. Traffic noise levels would increase less than 2 dBA during typical daytime and peak hours. Traffic noise would not increase substantially. Construction noise impacts would be short term and less than significant.

3.5.6.2 Alternative Design with Gap Closure

Construction

Alternative Design - Phase 1B

Noise impacts would be reduced from the bridged-gap alternatives. The reduction would be due to elimination of pile driving activities connected with construction of a bridge across the gap. Filling in the gap would eliminate all bridge- construction activities including pile driving.

The road and rail improvements would require grading, filling, and compaction of soils; trenching for ground preparation and for installation of support infrastructure and utilities; and paving.

Noise impacts resulting from construction depend upon the noise generated by various pieces of construction equipment, the timing and length of time of noise-generating activities, the distance between the noise-generating activities and the nearby sensitive receptors, and the time of day or night that the construction activities occur. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Major project components which would affect the NMCRC include construction of the rail corridor adjoining the eastern boundary of the facility and construction of the grade separation and reconfiguration of the Terminal Way/Navy Way/Reeves Avenue intersection at the southwest corner of the Naval Facility. Typical noise levels by phase of construction at a reference distance of 50 feet are shown in Table 3.5-4.

General construction noise levels outside existing occupied buildings at the Naval Facility would typically range from about 65 to 70 dBA. General construction noise levels, with the exception of pile driving, would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction of the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2) would occur immediately adjacent to the old Commissary Building. The potential effects upon the old Commissary Building would depend upon its use at the time the construction occurs. The building is a solid block building. Construction activities would not be expected to cause a significant disturbance inside this building, assuming standard maintenance or office uses.

Construction of the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would be separated from the NMCRC and its related facilities by distance and intervening structures (i.e. Navy Way grade separation). Construction noise levels would not be expected to substantially exceed existing ambient noise levels resulting from truck traffic on the adjacent roadways.

Construction traffic related noise level increases were calculated. Traffic noise levels would increase less than 2 dBA during typical daytime and peak hours. Traffic noise would not increase substantially. Construction noise impacts would be short term and less than significant.

3.5.7 MITIGATION MEASURES

3.5.7.1 Proposed Project

Vehicular traffic anticipated during Phase 2A would cause a significant noise impact at the NMCRC. No feasible mitigation measures exist for this impact. The structural design of the Navy Way/Seaside Avenue intersection/ overpass precludes construction of a sound wall along these roadways as mitigation.

Train horns, if sounded adjacent to the NMCRC, would cause a potentially significant noise impact for the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2). Train horns sounded along the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would not cause any significant noise impacts to the NMCRC. Train horns would only be sounded if there is an at-grade crossing. Elimination of the at-grade crossing at Reeves Avenue would mitigate this impact to a less-than-significant level. An alternative mitigation would be to reach an agreement with the Railroads that train horns would not be sounded adjacent to the NMCRC. In the two-track scenario without a soundwall, elimination of the train horns would ensure that noise impacts would be insignificant. For the one-track scenario with a soundwall, this structure would reduce noise impacts from train horns to insignificance. A soundwall would need to be at least 16 feet high in order to provide attenuation of the noise of the horn. With the 16-foot high soundwall, maximum noise levels outdoors would range from 94 dBA at 50 feet down to about 88 dBA at 200 feet. With a 20-foot high soundwall maximum noise levels from the horn would be about 80 dBA at 200 feet. Operational measures that would eliminate train horns are preferable for either the one- or two-track scenario.

3.5.7.2 Alternative Design

Vehicular traffic anticipated during Phases 1B and 2B would cause a significant noise impact at the NMCRC. No feasible mitigation measures exist for this impact. The structural design of the Navy Way/Seaside Avenue intersection/ overpass precludes construction of a sound wall along these roadways as mitigation.

Train horns, if sounded adjacent to the NMCRC, would cause a potentially significant noise impact for the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2). Train horns sounded along the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would not cause any significant noise impacts to the NMCRC. Train horns would only be sounded if there is an at-grade crossing. Elimination of the at-grade crossing at Reeves Avenue would mitigate this impact to a less-than-significant level. An alternative mitigation would be to reach an agreement with the Railroads that train horns would not be sounded adjacent to the NMCRC. In the two-track scenario without a soundwall, elimination of the train horns would ensure that noise impacts would be insignificant. For the one-track scenario with a soundwall, this structure would reduce noise impacts from train horns to insignificance. A soundwall would need to be at least 16 feet high in order to provide attenuation of the noise of the horn. With the 16-foot high soundwall, maximum noise levels outdoors would range from 94 dBA at 50 feet down to about 88 dBA at 200 feet. With a 20-foot high soundwall maximum noise levels from the horn would be about 80 dBA at 200 feet. Operational measures that would eliminate train horns are preferable for either the one- or two-track scenario.

3.5.7.3 Gap Closure Alternative

Vehicular traffic anticipated during Phase 2A or 1B and 2B would cause a significant noise impact at the NMCRC. No feasible mitigation measures exist for this impact. The structural design of the Navy Way/Seaside Avenue intersection/ overpass precludes construction of a sound wall along these roadways as mitigation.

Train horns, if sounded adjacent to the NMCRC, would cause a potentially significant noise impact for the Navy Mole Overhead Railroad Alignment (see Figure 3.5-2). Train horns sounded along the Navy Way Overhead Railroad Alignment (see Figure 3.5-3) would not cause any significant noise impacts to the NMCRC. Train horns would only be sounded if there is an at-grade crossing. Elimination of the at-grade crossing at Reeves Avenue would mitigate this impact to a less-than-significant level. An alternative mitigation would be to reach an agreement with the Railroads that train horns would not be sounded adjacent to the NMCRC. In the two-track scenario without a soundwall, elimination of the train horns would ensure that noise impacts would be insignificant. For the one-track scenario with a soundwall, this structure would reduce noise impacts from train horns to insignificance. A soundwall would need to be at least 16 feet high in order to provide attenuation of the noise of the horn. With the 16-foot high soundwall, maximum noise levels outdoors would range from 94 dBA at 50 feet down to about 88 dBA at 200 feet. With a 20-foot high soundwall maximum noise levels from the horn would be about 80 dBA at 200 feet. Operational measures that would eliminate train horns are preferable for either the one- or two-track scenario.

3.5.8 CUMULATIVE IMPACTS

3.5.8.1 Proposed Project

The future baseline traffic conditions were developed by considering the cumulative effects of regional growth and traffic generated by other proposed development projects in the harbor area. Project traffic was then added to the future baseline conditions to develop the cumulative with project analysis scenario. The traffic noise and vibration analyses are representative, therefore, of a cumulative noise impact analysis. The only train traffic that would utilize the transportation corridor would be train traffic going to and from Pier 400. The train noise and vibration impact analyses are, therefore, a cumulative analysis as well.

3.5.8.2 Alternative Design

The future baseline traffic conditions were developed by considering the cumulative effects of regional growth and traffic generated by other proposed development projects in the harbor area. Project traffic was then added to the future baseline conditions to develop the cumulative with project analysis scenario. The traffic noise analysis is representative, therefore, of a cumulative noise impact analysis. The only train traffic that would utilize the transportation corridor would be train traffic going to and from Pier 400. The train noise impact analysis is, therefore, a cumulative analysis as well.

3.5.8.3 Gap Closure Alternative

The future baseline traffic conditions were developed by considering the cumulative effects of regional growth and traffic generated by other proposed development projects in the harbor area. Project traffic was then added to the future baseline conditions to develop the cumulative with project analysis scenario. The traffic noise analysis is representative, therefore, of a cumulative noise impact analysis. The only train traffic that would utilize the transportation corridor would be train traffic going to and from Pier 400. The train noise impact analysis is, therefore, a cumulative analysis as well.

3.5.9 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

3.5.9.1 Proposed Project

Traffic noise from the operation of Phase 2A would result in significant unavoidable adverse impacts, as mitigation measures to reduce noise levels to insignificance would be infeasible. There are no significant unavoidable vibration impacts.

3.5.9.2 Alternative Design

Traffic noise from the operation of Phases 1B and 2B would result in significant unavoidable adverse impacts, as mitigation measures to reduce noise levels to insignificance would be infeasible. There are no significant unavoidable vibration impacts.

3.5.9.3 Gap Closure Alternative

Traffic noise from the operation of Phases 2A or 1B and 2B would result in significant unavoidable adverse impacts, as mitigation measures to reduce noise levels to insignificance would be infeasible. There are no significant unavoidable vibration impacts.

3.5.10 COMPARISON OF ALTERNATIVES

3.5.10.1 Construction Impacts

Construction noise is considered to be insignificant due to its short term and low average levels at the sensitive receptor for all alternatives. Alternatives involving bridging the gap would be more adverse due to the requirements to drive piles for the bridge structure. Increased adverse impacts are present only during Phase 1 of each alternative.

3.5.10.2 Operational Impacts

See table 3.5-5 for a comparison of operational impacts between design alternatives.

Table 3.5-5 Comparison of Noise Levels at the NMCRC from Operation of the Pier 400 Project

Project Phase/Activity	Estimated Noise Level Increase (dBA)
Phase 1A - Proposed Project	2
Phase 1A - Proposed Project with Gap Fill	2
Phase 1B - Alternative Design	4
Phase 1B - Alternative Design with Gap Fill	4
Phases 1A and 2A Combined - Proposed Project	3
Phases 1A and 2A Combined - Proposed Project with Gap Fill	3
Phases 1B and 2B Combined - Alternative Design	5
Phases 1B and 2B Combined - Alternative Design with Gap Fill	5

The Alternative Design results in higher noise impacts than does the Proposed Project. This is largely the result of increased truck noise due to a higher container throughput.

3.5.11 MITIGATION MONITORING PROGRAM

3.5.11.1 Proposed Project

The Mitigation Monitoring Program for Noise and Vibration is shown below in Table 3.5-6. These measures apply to the proposed project and to the proposed project with gap closure.

3.5.11.2 Alternative Design

The Mitigation Monitoring Program for Noise and Vibration is shown below in Table 3.5-7. These measures apply to the alternative design and to the alternative design with gap closure.

3.5.12 IMPACTS FROM PROJECT ALTERNATIVES

3.5.12.1 Proposed Project

The following is a presentation of noise and vibration impacts that would occur from the construction and operation of the (1) Phases 1A and 2A design operated by separate customers and (2) no project alternatives. Noise and vibration levels from the Phases 1A and 2A separate terminals alternative were compared to emissions from the proposed action and no project alternative to determine the level of impacts between each scenario.

Noise

Separate Terminals Alternative

If Pier 400 were to be developed as two separate container terminals, the overall throughput levels would be unchanged from the levels estimated for Phases 1A and 2A combined facility alternative. The offsite noise impacts for this alternative would, therefore, be the same for Phases 1A and 2A as for the proposed project.

Table 3.5-6 Mitigation Monitoring Program - Proposed Project

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
Increased truck traffic noise at the NMCRC would exceed appropriate speech interference thresholds during Phase 2A.	None feasible	Significant for Phase 2A	None	None
Train horns sounded adjacent to the NMCRC would cause a potentially significant noise impact during Phase 2A for the Navy Mole Overhead Rail Alignment only.	Eliminate the at-grade crossing at Reeves Avenue. Alternatively, eliminate train horns adjacent to the NMCRC or construct a 16- to 20-foot high sound wall adjacent to the NMCRC along the railroad alignment. Measures that would eliminate the need for train horns are preferable for either the one- or two-track scenario.	Insignificant	LAHD	Once, after construction.

Table 3.5-7 Mitigation Monitoring Program - Alternative Design

Potential Significant Adverse Impact	Mitigation Measure	Significance After Mitigation	Mitigation Program Responsibility/ Report Recipient	Monitoring Frequency
Increased truck traffic noise at the NMCRC would exceed appropriate speech interference thresholds during Phases 1B & 2B.	None feasible	Significant for Phases 1B & 2B	None	None
Train horns sounded adjacent to the NMCRC would cause a potentially significant noise impact during Phase 1B & 2B for. the Navy Mole Overhead Rail Alignment only.	Eliminate the at-grade crossing at Reeves Avenue. Alternatively, eliminate train horns adjacent to the NMCRC or construct a 16- to 20-foot high sound wall adjacent to the NMCRC along the railroad alignment. Measures that would eliminate the need for train horns are preferable for either the one- or two-track scenario.	Insignificant	LAHD	Once, after construction.

No-Project Alternative

The No Project alternative would have no container throughput activity and the alternative would therefore not generate any traffic or train trips. As there would be no traffic or train trips, the noise impacts discussed earlier for the proposed project would not occur. No mitigation measures would be required.

Vibration

Separate Terminals Alternative

The vibration impacts associated with the separate terminals alternative would be the same as the vibration impacts resulting from Phases 1A and 2A combined facility alternative, as discussed above for noise. The impacts would be less than significant.

No-Project Alternative

The No Project alternative would not produce any train trips passing by the NMCRC and would therefore not produce any associated ground-based vibrations.

3.5.12.2 Alternative Design

The following is a presentation of noise and vibration impacts that would occur from the no project alternative. Impacts from a another alternative (Proposed Project) are addressed above.

Noise

No-Project Alternative

The No Project alternative would have no container throughput activity and the alternative would therefore not generate any traffic or train trips. As there would be no traffic or train trips, the noise impacts discussed earlier for the proposed project would not occur. No mitigation measures would be required.

Vibration

No-Project Alternative

The No Project alternative would not produce any train trips passing by the NMCRC and would therefore not produce any associated ground-based vibrations.

SECTION 4

ALTERNATIVES TO THE PROPOSED PROJECT

SECTION 4
ALTERNATIVES TO THE PROPOSED PROJECT

4.1 INTRODUCTION

This chapter describes alternatives to the proposed action of developing a container terminal on Pier 400. A wide array of alternatives was examined in conjunction with the preparation of this SEIR. These alternatives were divided into the no-project alternative, alternative designs, and alternative uses.

Each of the alternatives identified were evaluated as to whether they would attain the basic objectives of the proposed project, whether they would be technically feasible, and whether they could possibly offer environmental advantages over the proposed project.

4.2 NO PROJECT

Under the no-action alternative, the container terminal would not be built; the purpose and need and objectives for the project identified in section 1.1 of this SEIR would not be realized; and the container terminal site would be vacant. The Port would not be able to efficiently meet real and projected increases in container cargo demand (WEFA 1987 & 1989) due to limitations in available unused land and limitations in existing facilities and infrastructure (Vickerman, Zacharay, and Miller, 1988 & 1991). Large unused parcels of land are too valuable to be allowed to remain vacant. Some other use for the site would be expected and would be evaluated in a separate environmental document should this alternative be selected.

Without the proposed project, the existing environmental conditions at Pier 400 and the surrounding marine environment would be maintained for the immediate future. Environmental impacts associated with the proposed project, particularly those impacts identified as unavoidable, would be eliminated. Irreversible and irretrievable natural resources would not be committed to the project. However, the beneficial impacts related to increased cargo handling efficiencies and reduced air quality and traffic impacts would not be realized. When the commodity throughput begins to exceed the historical baseline capacity for existing container terminals, shipping delays would occur (i.e., from vessel queues and less-frequently available inland transportation systems). This would result in instances where the cargo destined for the Los Angeles region would incur substantial costs for additional handling and transport, as well as environmental impacts associated with additional traffic congestion, vehicle emissions, and site development inland.

Pier 400 was developed from dredged materials for additional Port use. The land uses around Pier 400 are generally industrial in nature. If the proposed project does not proceed, some other port-related water-dependent use ultimately would be developed on the Pier 400 site. Water-dependent use is required to be consistent with the California Coastal Act, California Tidelands Trust Act, and 404 permit requirements.

Although the no-action alternative would not meet the proposed action objectives, it is carried forward into the environmental analyses with the proposed action in chapter 3.0 in accordance with CEQA requirements.

4.3 ALTERNATIVE DESIGNS

Two alternative designs were considered. The first alternative design would be to operate each of the design phases as a separate container terminal resulting in two operating container terminals on the site. This option allows for the creation of two, smaller terminals in place of one large terminal. As such, this alternative meets the requirements of the proposed project objectives and it is carried forward into the environmental analyses with the proposed action in chapter 3.0 in accordance with CEQA requirements.

A second alternative design would be to limit construction of the container terminal to the Phase 1 area only. This would result in the creation of one small container terminal with the Phase 2 area remaining as vacant land. As for the No-Project Alternative, large unused parcels of land are too valuable to be allowed to remain vacant. Some other use for the site would be expected and would be evaluated in a separate environmental document should this alternative be selected. Some other port-related water-dependent use ultimately would be developed on the Pier 400 site. Water-dependent use is required to be consistent with the California Coastal Act, California Tidelands Trust Act, and 404 permit requirements. This alternative does ot meet the proposed action objectives. Therefore, this alternative was removed from further consideration.

4.4 ALTERNATIVE USES

There are very few sites suitable for water-dependent operations such as the proposed container terminal. The California Coastal Act (Chapter 8) designates certain areas for harbor uses. An analysis of these and other areas along the West Coast indicates that all West Coast ports need to expand to meet container demand (Vickerman, Zacharay, and Miller 1991). Expanding container terminal capabilities at other ports would likely have similar or greater environmental impacts than those associated with the Pier 400 project.

Within the Port, there are no existing alternative sites that can accommodate a container terminal site of this size with an adjacent ICTF without extensive dredging and wharf modifications that would involve environmental impacts considerable more severs than the proposed action on Pier 400. Thus, construction- and operation-related effects (i.e., traffic and air quality impacts) associated with the proposed action would result regardless of the site selected. In addition, Pier 400 is located away from the communities of San Pedro and Wilmington at the terminus of the proposed Alameda Consolidated Transportation Corridor (ACTC). If constructed, the ACTC would minimize traffic, noise, and air quality impacts in the Los Angeles Basin.

Regardless of the site chosen for the proposed terminal, the existing Pier 400 project site will still be developed for some sort of terminal. Available waterfront like Pier 400 is scarce and its development is in keeping with the Port's responsibility for "modernizing and construction [of] necessary facilities to accommodate deep-draft vessels and to accommodate the demands of foreign and domestic waterborne commerce . . ." (POLA, 1979).

In conclusion, there are no better sites in the Port area to accommodate the proposed container terminal. The development of other existing or potential sites would entail environmental impacts similar to or greater than the proposed action on Pier 400. Therefore, no other sites are analyzed in this EIR.

As previously identified, the Wharton Econometrics Forecasting Associates study (WEFA 1987 & 1989) projected a great increase in the demand for container cargo through the Port of Los Angeles. The cargo handling operations, facilities, and infrastructure (OFI) studies (Vickerman, Zacharay, and Miller 1988 & 1991) identified and quantified operational capacities of present and future terminal facilities into conceptual land and water development plans to meet projected cargo handling needs to the year 2020. These studies indicated the need to construct additional terminals, including container terminals, in order to meet projected increases in cargo shipment demand. Pier 400 is viewed as an ideal location for these terminals because it is the only available site of its kind of the necessary size and configuration and it is in compliance with the 2020 Plan.

Port planning has focused on the siting of proposed container facilities on Pier 400. It has also considered incorporating additional land uses into the site plan. These include an auto terminal and a scrap metal facility. Both of these were dropped from consideration due to operational inefficiencies. The location of Pier 400 in the outer harbor provides an opportunity to handle deep draft vessels while minimizing dredging. Scrap metal and automotive facilities do not require deep draft vessels so siting them at Pier 400 would be inefficient and wasteful of a valuable location. There is also no current demand for additional scrap metal and automotive terminal facilities in the Port, and, if there were, they could be located at other sites available for those uses. Use of Pier 400 for scrap metal and automotive facilities would not be the highest and best use of the Port's waterfront resources. Therefore, these alternative land uses were removed from consideration.

SECTION 5

LONG TERM IMPLICATIONS OF THE PROPOSED PROJECT

SECTION 5

LONG-TERM IMPLICATIONS OF THE PROPOSED PROJECT

The primary objective of this project is to optimize the efficiency of transporting future waterborne commerce by expanding berth and landside cargo handling facilities and capabilities. A second objective of this project is to preserve and improve environmental resources to the maximum extent practical.

5.1 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The proposed project is the construction and operation of a container terminal on Pier 400. It is expected to result in significant adverse environmental changes. Significant impacts would occur in the following impact areas: Meteorology and Air Quality, and Biota and Habitats.

Non-recoverable materials and energy would be used during construction activities, but the amounts needed are easily accommodated by existing supplies. Commitments of resources for this project include fossil fuels; habitats; water; air quality; land use; capital; labor; and rock, concrete, gravel, and other construction materials. Although the increase in the amount of materials and energy used would be insignificant, they would nevertheless be an irreversible and irretrievable commitment of resources.

5.2 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

Development of the project would have short-term and long-term effects on the environment. During the short-term period, project development would involve the commitment of substantial financial and material resources. The commitment of these resources would have beneficial effects on employment and income in the local and regional construction industry.

The proposed project would provide for some of the nation's future port terminal facilities needed to meet projected increases in container cargo demand. The Charter of the City of Los Angeles mandates the LAHD to accommodate foreign and domestic waterborne commerce, navigation, and fisheries. The basic objectives of this project are to:

- Expand the Port's capacity for meeting projected increases in cargo demand;
- Construct a near dock Intermodal Transfer Container Facility (ICTF) to reduce street and highway transportation impacts by increasing rail transport of containers; and
- Provide transportation improvements to facilitate efficient transport of container terminal cargo while minimizing transportation and air quality impacts.

This project would allow expansion of the port's present capacity to meet the present and future market for cargo handling in the Port of Los Angeles. The project would also provide employment, income, and net fiscal benefits and revenues to local governments.

5.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

The proposed project would have slight growth implications over time. The effects of the project on regional growth stem from direct and indirect population and economic growth resulting from labor needs and expenditures which were addressed in the Deep Draft Navigational Improvements Project EIS/EIR. Short-term construction effects would include expenditures of millions of dollars resulting in direct and indirect employment of hundreds of people in the region. Long-term operational effects would include annual expenditures in direct and indirect employment.

The proposed project is consistent with the 2020 Plan for the Port of Los Angeles and other related projects, as described in Section 2. The development would not require additional public services or utilities. Because of the existing sizable local and regional labor pool, no significant influx of workers into the local communities is anticipated. Therefore, any increase in population and housing as a result of the proposed project would be insignificant.

5.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The following significant, unavoidable, short-term environmental effects resulting from the proposed project are anticipated:

- Disturbance to the endangered California least tern as a result of noise, lighting, and human presence during construction activities.
- ROG, CO, NOx, and PM10 emissions during construction.

The project would also lead to significant adverse effects on long-term use of the environment. The long-term impacts listed below include those that cannot be mitigated to insignificance as well as those that may not be able to be mitigated to insignificance either because the mitigation may not be effective or because it may be infeasible. These impacts include the following:

- Disturbance to the endangered California least tern as a result of noise, lighting, and human presence during operations.
- Increased air pollution from terminal operations.

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APPENDICES

APPENDIX A

PERSONS CONSULTED

APPENDIX B

PREPARERS OF THE EIR

APPENDIX C

INITIAL STUDY AND ENVIRONMENTAL CHECKLIST

APPENDIX D

HYDRODYNAMICS AND WATER QUALITY STUDIES FOR PIER 400 CAUSEWAY GAP EXECUTIVE SUMMARY