Volume I

Final
Supplemental
Environmental Impact Statement
for
Developing Homeport Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet

December 2008

Prepared by:
United States Department of the Navy
United States Fleet Forces Command

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DECEMBER 2008

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Prepared by Department of the Navy

In accordance with Chief of Naval Operations Instruction 5090.1C
Pursuant to National Environmental Policy Act Section 102(2)(C)

FINAL
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR DEVELOPING HOMEPORT FACILITIES FOR THREE NIMITZ-CLASS AIRCRAFT CARRIERS IN SUPPORT OF THE U.S. PACIFIC FLEET

December 2008

A B S T R A C T

This Final Supplemental Environmental Impact Statement (SEIS) has been prepared to supplement the analyses contained in the 1999 Final Environmental Impact Statement (FEIS) for Developing Homeport Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet (the 1999 FEIS). The SEIS analyzes information that was not available at the time the 1999 FEIS was completed, and focuses on potentially significant new circumstances or information relevant to environmental conditions that have emerged since the 2000 Record of Decision (2000 ROD) for the 1999 FEIS. The primary focus of this SEIS is on vehicular traffic and traffic-related issues in the vicinity of Naval Air Station North Island (NASNI) in Coronado, California, including evaluating the effectiveness of traffic mitigation measures implemented pursuant to the 2000 ROD. The SEIS also supplements the 1999 FEIS traffic impact analysis by evaluating an expected increase in the average number of intermittent, nonconsecutive days each year (from 13 to 29) that the 3 nuclear powered aircraft carriers (CVNs) homeported at NASNI would be in port simultaneously. The SEIS also addresses potential environmental impacts associated with minor CVN berth infrastructure improvements that were not required at the time of the 1999 FEIS. Finally, the document addresses public scoping comments related to potential causes of off-site shoreline erosion along First Street in Coronado. Information or circumstances that have not changed significantly since the 2000 ROD are not re-examined in this SEIS.

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List of Abbreviations and Acronyms

AADT	annual average daily traffic
ADCP	Acoustic Doppler Current Profiler
ADT	average daily traffic
AICUZ	Air Installation Compatible Use Zone
AMD	Activity Manning Document
APCD	Air Pollution Control District
AT/FP	Anti-Terrorism/Force Protection
AWS	all way stop
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CALTRANS	California Department of Transportation
CARB	California Air Resources Board
CATEX	Categorical Exclusion
CCA	California Coastal Act
CDC	Child Development Center
CEQ	Council of Environmental Quality
CFR.	Code of Federal Regulations
CIA	Continuous Incremental Availability
CNAF	Commander, U.S. Naval Air Forces
CNEL	Community Noise Equivalent Level
CNRSW	Commander Navy Region Southwest
CO	carbon monoxide
CV	conventionally-powered aircraft carriers
CVN	nuclear-powered aircraft carrier
CWA	Clean Water Act
cy	cubic yards
CZMA	Coastal Zone Management Act
DAR	Defense Access Road
dB	decibels
dBA	A-weighted decibel level
DOD	Department of Defense
DON	Department of Navy
EA	Environmental Assessment
ECL	exceeds calculable limit
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FMP	Fishery Management Plans
FONSI	Finding of No Significant Impact
FRP	Fleet Response Plan
FY	Fiscal Year
HAP	hazardous air pollutant
HAPC	Habitat Area of Particular Concern
INLS	Improved Navy Lighterage System
INRMP	Integrated Natural Resources Management Plan
LA-5	ocean dredged material disposal site (off San Diego)
Ldn	day-night average level
Leq	energy equivalent levels
LOS	level of service
LVC	Low Visibility Craft
μPa	micropascal
m	meters
mi^2	square miles
m^3	cubic meters
MBTA	Migratory Bird Treaty Act
Mg/L	milligrams per liter
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
mph	miles per hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAB	Naval Amphibious Base
NAC	noise abatement criteria
NBPL	Naval Base Point Loma

NAS	Naval Air Station
NASNI	Naval Air Station North Island
NAVFAC SW	Naval Facilities Engineering Command, Southwest
NAVSTA	Naval Station
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOPH	Notice of Public Hearing
NO_2	nitrogen dioxide
NOx	nitrogen oxides
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OPNAVINST	Chief of Naval Operations Instruction
OWS	one way stop
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PHNSY	Pearl Harbor Naval Shipyard
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PFMC	Pacific Fishery Management Counsel
ppt	parts per thousand
PSNS	Puget Sound Naval Shipyard
QDR	Quadrennial Defense Review
ROD	Record of Decision
RONA	Record of Non-Applicability
RWQCB	Regional Water Quality Control Board
S	signalized
SAS	Special Aquatic Site
SCB	Southern California Bight
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDCAPCD	San Diego County Air Pollution Control District
SDUPD	San Diego Unified Port District
SECNAVINST	Secretary of Navy Instruction
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO	sulfates
SPAWAR	Space and Naval Warfare Systems Command Program
SR	State Route
TCP	Transportation Corridor Project
TDM	transportation demand management
TSM	transportation systems management
TWS	two way stop
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
USFF	U.S. Fleet Forces
USFWS	U.S. Fish and Wildlife Service
v/c	volume to capacity ratio
VMT	vehicle miles traveled
vph	vehicles per hour
VOC	volatile organic compound

EXECUTIVE SUMMARY

INTRODUCTION

The United States Department of the Navy (DON; Navy) has prepared this document to supplement the impact analyses contained in the Final Environmental Impact Statement (FEIS) for "*Developing Home Port Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet*" (the 1999 FEIS) in light of current circumstances and information. The 1999 FEIS addressed the environmental consequences of homeporting an additional 2 nuclear powered aircraft carriers (CVNs) (for a total of 3) at Naval Air Station North Island (NASNI) located at the north end of Coronado Island in San Diego County, California. NASNI occupies approximately 2,800 acres of land that is surrounded by water on the west by the Pacific Ocean and on the north and east by the San Diego Bay. NASNI has been in continual operation since 1917.

This Final Supplemental Environmental Impact Statement (SEIS) analyzes information that was not available at the time the 1999 FEIS was completed, and focuses on potentially significant new circumstances or information relevant to environmental conditions that have occurred since the 2000 Record of Decision (ROD) for the 1999 FEIS (dated 28 January 2000, published in the Federal Register (FR) on February 8, 2000 (65 FR 6181) and hereafter referred to as the "2000 ROD"). Information or circumstances that have not undergone significant change since the 2000 ROD are not re-examined. By supplementing the 1999 FEIS, this SEIS advances the purpose of the National Environmental Policy Act (NEPA) of informing Navy decision-makers and the general public about the environmental effects of the government's action.

This SEIS is prepared in accordance with Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Part 1500); NEPA (42 United States Code (USC) 4321); United States (U.S.) Navy procedures for implementing NEPA (32 CFR Part 775); Secretary of Navy Instruction (SECNAVINST) 5090.6A; and the guidelines contained in the Chief of Naval Operations Environmental and Natural Resources Program Manual Instruction (OPNAVINST) 5090.1C. The guidance for a supplemental environmental document is contained in 40 CFR 1502.9 and this SEIS has been prepared consistent with this guidance.

A primary focus of the SEIS is on vehicular traffic and traffic-related issues. The document evaluates the effectiveness of traffic mitigation measures implemented pursuant to the 2000 ROD, and reevaluates the 1999 FEIS traffic impact analysis in light of new circumstances or information relevant to traffic conditions. Among these changes is an anticipated increase in the average number of intermittent, nonconsecutive days each year (from 13 to 29) when the 3 CVNs homeported at NASNI are in port simultaneously. The SEIS also evaluates the infrastructure improvements included in military construction (MILCON) project (P-704) for Berth LIMA at NASNI, which were not required or implemented at the time the 1999 FEIS and 2000 ROD were prepared. The proposed minor infrastructure upgrades are required to modernize and upgrade the existing CVN berth, Berth LIMA, to comply with current infrastructure design standards for a homeported CVN and to correct normal infrastructure deterioration that has occurred over the last 9 years due to age, use, and exposure to the marine environment. These proposed improvements include construction of a fendering system, mooring bollards, a CVN security building and Anti-Terrorism/Force Protection (AT/FP) improvements, as well as the installation of information systems, electrical and mechanical utility upgrades, paving, drainage, and site improvements. It is anticipated that the proposed construction projects at Berth LIMA would require from 12 to 18 months to accomplish. Finally, the SEIS addresses public scoping comments related to off-site shoreline erosion. During the scoping process, public comments relating to shoreline erosion along First Street in the City of Coronado were raised. This SEIS responds to these comments by analyzing current erosion conditions in comparison to past conditions.

BACKGROUND

The Navy decided in its 2000 ROD to create a homeport at NASNI to accommodate 2 additional CVNs (for a total of 3) in support of the Navy's Pacific Fleet Force Structure consisting of 6 aircraft carriers as later recommended by the 2006 Quadrennial Defense Review (QDR). Homeports for 5 Pacific Fleet CVNs have already been assigned to Navy installations in the continental U.S. and overseas. The 6th CVN is currently undergoing maintenance at the Newport News Shipyard in Virginia. On 30 March 2007, the Secretary of Navy announced that USS CARL VINSON (CVN 70) would move its homeport to NASNI following the completion of a SEIS. The move would be consistent with the 2006 QDR, the 1999 FEIS, and the 2000 ROD, which analyzed and recorded the decision to create the capacity to homeport 3 CVNs at NASNI.

Historically, NASNI has been the homeport for 3 conventional aircraft carriers (CVs) and CVNs. NASNI has also supported minimal operational requirements for transient carriers. The 2000 ROD was implemented in 2004 upon the arrival of the third CVN (USS RONALD REAGAN, CVN 76). Individual CVNs are assigned to a specific homeport for multiple years and homeport changes occur over time due to global threats and maintenance cycles. At this time, 2 CVNs are homeported at NASNI: USS RONALD REAGAN (CVN 76) and USS NIMITZ (CVN 68). Based upon Pacific Fleet requirements, NASNI needs to re-establish the third CVN homeport berth by modernizing and upgrading a CVN berth known as Berth LIMA along the existing quaywall to a fully capable modern homeport berth.

PURPOSE AND NEED

The purpose of this document is to supplement the impact analyses contained in the 1999 FEIS. This SEIS compares the environmental conditions predicted in the 1999 FEIS to current circumstances and information. Where pertinent new information or potentially significant new consequences have developed following the 2000 ROD, additional analyses have been performed to ensure that Navy decision-makers and the public are well informed as to these circumstances and information relevant to the environmental consequences analyzed in the 1999 FEIS.

The purpose of the proposed minor infrastructure upgrades is to modernize and upgrade the existing CVN berth, Berth LIMA, to comply with current infrastructure design standards for a homeported CVN. The need is created by the publication and release of new design standards for CVN homeport berths and by normal infrastructure deterioration that has occurred over the last 9 years due to age, use, and exposure to the marine environment.

SCOPE OF THE SEIS

For this SEIS, the baseline data and impact analyses focus on 6 environmental resource areas that have new information or circumstances considered. The 6 areas are: ground transportation/circulation (traffic), air quality, noise, biological resources, marine water quality, and coastal processes (erosion). In addition, the analyses are organized to present 3 primary issue areas: traffic and transportation, construction of new infrastructure improvements, and erosion comments expressed during public scoping. The affected resource areas are depicted as baseline conditions against which the supplemental action components were evaluated to yield an assessment of the resulting environmental effects. For each affected resource area, the level of detail used in the affected environment description is commensurate with the relative significance of any associated project impacts. As a supplemental document, this SEIS avoids revisiting information from the 1999 FEIS that continues to be relevant. The SEIS is organized into chapters dealing with 3 primary issue areas: traffic and transportation; construction of minor infrastructure improvements; and erosion processes. As appropriate, each of the 5 resource areas mentioned above are addressed in these subsequent chapters in this SEIS.

PUBLIC INVOLVEMENT

Public comment on the scope of this SEIS was solicited pursuant to federal requirements. A Notice of Intent (NOI) was published in the Federal Register Volume 72, Number 201, Pages 59084-59085 on October 18, 2007, which specified that comments must be received on or before November 19, 2007. In response to local wildfires in the San Diego area, the DON decided to extend the normal 30-day scoping period. A second notice was published in the Federal Register Volume 72, Number 218, Page 63891 on November 13, 2007, indicating that the public comment period had been extended through December 3, 2007 for a total of 47 days.

Public notices informing the public of the scoping period were published in the following newspapers:

- San Diego Tribune on October 19, 20 and 21, 2007 (in English)
- Coronado Eagle on October 24, 2007 (in English)
- La Prensa San Diego on October 26, 2007 (in Spanish)

During the scoping period, the Navy received a total of 87 comments from the general public and federal and state agencies that were considered during the development of the SEIS. The agencies included the U.S. Coast Guard (USCG), San Diego Association of Governments (SANDAG), and the U.S. Environmental Protection Agency (EPA) Region 9. The primary issues presented by public comment within the scoping process included:

1. Erosion due to previous dredging and wave action from boat traffic; and
2. Traffic impacts resulting from the addition of personnel associated with a third aircraft carrier at NASNI.

The Notice of Availability (NOA) and Notice of Public Hearing (NOPH) for the Draft SEIS appeared in the Federal Register on August 8, 2008 beginning the 45-day public review period that ended on September 22, 2008. A public hearing for the Draft SEIS was held during this public review period, on September 3, 2008, and comments received during the comment period and from the public hearing have been addressed in this Final SEIS.

The public hearing was held at the Coronado Community Center on September 3, 2008 from 6:00 to 9:00 P.M. The hearing was preceded by a public open house informational session between 3:00 and 6:00 P.M. Sixty-three people attended the public hearing and open house, 21 people provided verbal comments and 8 people submitted written comments. Paid advertisements providing notification of the NOA and NOPH, and listing the 6 locations where the Draft SEIS was available for review, were published in 3 local and regional newspapers and were posted on the project website (http://www.nimitzcarriersseis.com). The ads, including one in Spanish, are shown in Appendix J.

The Navy received comments from 49 people during the 45-day public comment period; including, 3 elected officials, 11 federal, state, and local government agency representatives, 4 organization representatives, and 31 individuals. Most comments concerned either traffic or shoreline erosion issues. All comments and Navy responses to those comments are provided in Appendix K.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The Proposed Action analyzed in the 1999 FEIS was executed in 2004 pursuant to the 2000 ROD to homeport 3 CVNs at NASNI. This SEIS does not propose any changes to the Proposed Action analyzed in the 1999 FEIS. However, this SEIS does analyze some minor infrastructure upgrades some of which were not required at the time of the FEIS. Therefore, the Navy proposes to implement those minor infrastructure upgrades in order to meet current Navy requirements. The Navy's analysis of the existing CVN homeport facilities and infrastructure at NASNI included a summary of specific construction projects needed to satisfy the requirements set out in the Naval Sea Systems Command and Naval Facilities Engineering Command guidance documents and AT/FP guidance documents. There are no practical alternatives to these requirements, as current guidelines require these features for a homeport berth. Consequently, no alternatives to the minor infrastructure upgrades are discussed.

The minor infrastructure improvements will all take place at Berth LIMA at NASNI. No new dredging is required. These improvements include the construction of a fendering system, mooring bollards, a CVN security building and AT/FP improvements, as well as the installation of information systems, electrical and mechanical utility upgrades, paving, drainage, and site improvements. Alternative methods of design or construction or alternatives related to location would not meet the purpose and need, and are not analyzed in the supplemental assessments within this SEIS. The No Action Alternative, while providing a comparative baseline for assessing the effects of the minor infrastructure improvements proposed at Berth LIMA, is not considered a reasonable alternative for satisfying the purpose and need of this SEIS.

NEW CIRCUMSTANCES AND INFORMATION

The Navy has carefully considered what it believes to be all of the relevant environmental facts and circumstances associated with implementation of the 2000 ROD, with particular attention to the topics covered by the 1999 FEIS and the scoping comments received during preparation of this SEIS. The 6 resources that are revisited in this SEIS include: ground transportation and circulation (traffic), air quality, noise, biological resources, marine water quality, and coastal processes (erosion). Where a particular environmental resource is not discussed, the Navy determined there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts as discussed in the 1999 FEIS, and/or the issue was not raised during public scoping. The following new circumstances or information have been identified as relevant changes since the 1999 FEIS and 2000 ROD:

Traffic-Related Issues

General Traffic Conditions

Traffic conditions in the City of Coronado have changed since publication of the 2000 ROD. Important infrastructure changes include the removal of the toll booths on the Coronado Bridge (State Route [SR]-75), which enables drivers to use City streets at an increased frequency. In addition, the Navy has finished construction of the NASNI Main Gate at Stockdale Boulevard (Third Street) which opened on July 9, 2007. Traffic from all users accessing Coronado Island via the Coronado Bridge has increased, from approximately 78,000 daily trips in 2000 to approximately 83,000 daily trips in 2006. This represents a 6 percent increase in daily trips since 2000.

Number of Days Three CVNs Simultaneously in Port

Since the 2000 ROD, both deployment cycles and maintenance cycles for CVNs have been adjusted. The maintenance plans are predicated on the current Fleet Response Plan (FRP). The FRP, adopted in 2003, features a change in readiness posture that institutionalizes an enhanced surge capability for the Navy. It calls for 6 of the Navy's 12 aircraft carriers to be available for deployment within 30 days, and another 2 to be available in 90 days. To meet the current FRP objective, the Navy has extended the interval between maintenance periods and modified training and manpower processes. Since the 2000 ROD, the maintenance schedule for homeported CVNs has been extended from 24 to 32 months, including the addition of a new 30-day period of in port maintenance. Analysis of known maintenance schedules and anticipated operational requirements indicate that the average number of days per year that 3 CVNs will be in port simultaneously has increased from 13 intermittent, nonconsecutive days to 29 intermittent, nonconsecutive days. This SEIS evaluates vehicular traffic and traffic related issues assuming the 3 CVNs will be in port simultaneously an average of 29 intermittent, nonconsecutive days each year.

Minor Infrastructure Improvements

Since the 2000 ROD, the homeporting facilities and infrastructure improvements necessary to meet all applicable requirements have changed. These changes are required to achieve compliance with the following regulations and guidelines:

- Unified Facilities Criteria (UFC) 4-159-03 – Policy and Procedures for Design of Moorings for U.S. Department of Defense Vessels.
- Interim Technical Guidelines – Facility Homeporting Criteria for Nimitz-Class Carriers; and
- Interim Technical Guidelines for Antiterrorism Force Protection and Physical Security of Waterfront Facilities.

Scoping Comments about Shoreline Erosion

During the scoping process, public comments relating to shoreline erosion along First Street in the City of Coronado were raised. Commenters suggested that the erosion is caused by previous dredging, and by wave action associated with ongoing boat and ship traffic in San Diego Bay. This SEIS responds to these comments by analyzing current conditions in comparison to past and previously anticipated conditions.

SUMMARY AND CONCLUSIONS OF TRAFFIC ANALYSIS

A Traffic Study for NASNI was completed in 2008 and is based on the following new circumstances or information since the 1999 FEIS and 2000 ROD:

- *Baseline traffic conditions in Coronado have worsened.* Compared to what was previously projected, traffic has increased by 9,000 vehicles per day on Third Street between Orange Avenue and the Coronado Bridge, which suggests a general increase in traffic unrelated to NASNI. Removal of the bridge toll in 2002 appears to have increased off-peak travel. Traffic on Orange Avenue has also increased by 2,000 vehicles per day since 2001, further indicating that general traffic increases are not NASNI related.
- *Baseline traffic conditions on NASNI and carrier-related trip generation assumptions have been updated*. Baseline traffic conditions on NASNI roads have been updated based on July 2007 traffic counts of vehicles entering NASNI (the 1999 FEIS baseline for on-station traffic had been based on 1993 data). In addition, the expected number of peak-hour vehicle trips generated by CVNs has been revised upwards (compared to the 1999 FEIS assumption) to reflect new data and changes in Navy quality of life initiatives.
- *Expected frequency of 3 CVNs being in port simultaneously has changed.* Historical records used in the 1999 FEIS suggested that when 3 CVNs were homeported, all 3 carriers would be in port simultaneously an average of only 13 intermittent, nonconsecutive days each year, or less than 4

percent of the year. More recently, the anticipated simultaneous occurrence of 3 CVNs in port (on average) has increased to 29 intermittent, nonconsecutive days each year (8 percent), based on updated operational and maintenance plans.

In addition, since the 2000 ROD, mitigation measures have been (and will continue to be) implemented in an effort to reduce potential traffic-related impacts. For example, the Navy has implemented staggered work shifts when 3 CVNs are in port simultaneously. When 3 carriers are in port, work start times are staggered by one hour (for purposes of this analysis start times were assumed to be 6:00 A.M., 7:00 A.M., and 8:00 A.M.). Work stop times are similarly staggered by one hour (assumed to be 2:00 P.M., 3:00 P.M., and 4:00 P.M. in this analysis). Other mitigation measures include encouraging carpools and vanpools, and subsidizing the use of public transportation by military personnel and civilian employees.

The 2008 Traffic Study, provided in Appendix C, was undertaken for this SEIS to evaluate the implications of these new circumstances and to establish new and updated baseline traffic conditions for key elements of the local transportation network. The 2008 Traffic Study also evaluated the effectiveness of 2000 ROD traffic mitigations, with particular emphasis on the effects of staggered work times, on peak hour traffic totals. This SEIS provides an analysis of data from the 2008 Traffic Study and evaluates potential mitigation measures for consideration by decision makers and members of the public.

Since the 1999 FEIS, daily traffic within Coronado has increased but has been fairly stable since 2004, particularly on the main corridors through the area. For example, the annual average daily traffic (AADT) volumes along Third and Fourth Street from 1992 to 2006 generally indicated the same volume with a large decrease in traffic in 1995 and increasing traffic after 2000. The AADT volumes along Orange Avenue peaked in 2003 with over 31,000 daily vehicles, with traffic volumes decreasing to less than 28,000 daily vehicles in 2005. Daily roadway traffic volumes along Orange Avenue have decreased since 2003. Roadway capacity and the amount of traffic congestion that occurs on roadways is typically measured and evaluated in terms of average daily traffic (ADT) or AADT. ADT is the average number of vehicles that use a roadway segment within a 24-hour period. The AADT is the average number of vehicles that use a roadway segment within a 24-hour period over an entire year. The AADT presents a broader view of roadway use and eliminates seasonal fluctuations in traffic volumes.

The following provides average daily traffic for NASNI-related traffic (entering and exiting NASNI) based on vehicle counts entering the installation at the NASNI gates:

- 1983 – 51,600 ADT
- 1989 – 61,978 ADT
- 1999 – 45, 136 ADT
- 2002 – 47, 696 ADT (included 3 CVNs in port)
- 2007 – 40,016 ADT (follows reconfiguration of main gates)

The estimated total traffic numbers extrapolated from the entering counts shows an increase of 4,793 total daily trips for each additional CVN in port.

Traffic impacts are based upon traffic counts collected in the summer and fall of 2007. The effects of traffic on area intersections and roadways are estimated for the current situation (2008) and future years 2015 and 2030 (cumulative impacts). Operating conditions on roadways and intersections under various traffic volume loads are described in terms of levels of service (LOS). LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing free flowing operating conditions and LOS F representing heavy congestion and delay. Along roadway segments, LOS is based on the ADT volume on a roadway and the volume-to-capacity (V/C) ratio.

Intersection LOS is based on morning (A.M.) and afternoon (P.M.) peak hour data and calculated delay (in seconds) per vehicle. Peak hours are those hours of the day during which the bulk of commute trips occur and traffic impacts are likely to be the greatest.

Hourly traffic volume data collected on principal local arterial streets in Coronado such as Third Street, Fourth Street, and Orange Avenue revealed that there is an extended morning and evening peak period on the local transportation network, representing a combination of the peak hours for NASNI traffic and the peak hours for community traffic within Coronado. The morning peak period typically occurs between 5:00 A.M. and 8:00 A.M., with the NASNI peak hour occurring from 6:15 A.M. to 7:15 A.M. and the community peak hour occurring from 7:30 A.M. to 8:30 A.M. The evening peak period typically occurs between noon and 6:00 P.M. with the NASNI peak hour occurring from 2:30 P.M. to 3:30 P.M. and the community peak hour occurring from 4:30 P.M. to 5:30 P.M. The extended peak periods are a reflection of the sequential nature of the separate traffic peaks associated with NASNI and community traffic.

Peak hour traffic for a CVN was estimated on the likely arrival and departure of crew assigned to a CVN. Each CVN is estimated to generate a total of 4,793 daily vehicle trips, including 1,392 (1,265 in, 127 out) A.M. peak-hour trips and 1,392 (127 in, 1,256 out) P.M. peak-hour trips.

Under baseline conditions, 14 intersections operate at deficient LOS (LOS E or F). Of the 14 intersections with deficient LOS, 4 intersections are signalized and 10 intersections are unsignalized. The majority of intersections found to be deficient are located along principal arterial roads, including First Street, Third Street, and Fourth Street. This is where current traffic flows are the most concentrated during the peak periods.

In the 2000 ROD, the Navy agreed to provide staggered work shift timing when 3 carriers are in port simultaneously. Without staggering, 2 large peaks would occur during the A.M. and P.M. peak periods, which assume a work start time of 7:00 A.M. In the A.M. peak hour, 4,176 vehicles would arrive at NASNI between 5:30 A.M. and 6:30 A.M. in order to report for duty at 7:00 A.M. In the afternoon peak, the same 4,176 vehicles would leave NASNI between 2:30 P.M. and 3:30 P.M.

The staggering of start and finish times reduces the severity of the peak 1-hour traffic volumes for inbound and outbound traffic. Instead of a peak hour ADT of 4,176, the estimated peak traffic would be 1,679 vehicles in the morning peak hour and 1,727 in the afternoon during the 29 intermittent, non-consecutive days per year when the 3 CVNs are in port. Comparing the 3 CVNs with staggered work hour scenario to having only 1 CVN in port, the former would generate only 287 additional vehicles during the morning peak hour and 335 during the afternoon peak hour. This clearly illustrates the effectiveness of staggered work hours in reducing the traffic added to the highest morning and afternoon peak hour.

When comparing the peak hour traffic associated with 2 additional CVNs (i.e., comparing the trip rate assumptions from the 1999 FEIS to the peak hour trips projected in the 2008 Traffic Study for 3 CVNs with the required staggering of work times), there would be roughly the same levels of traffic (23 fewer trips in the morning peak hour and 25 more trips in the afternoon peak hour). Based on these considerations, it is concluded that direct traffic impacts associated with 3 CVNs have not changed significantly since they were studied in the 1999 FEIS.

In addition, it is concluded that the implementation of other 2000 ROD mitigation measures associated with encouragement of carpools and vanpools and subsidization of public transportation alternatives has been effective in reducing both peak hour and total traffic on the local and regional road network.

The Navy acknowledges that, as a whole, NASNI contributes significantly to average traffic volumes in the area. However, NASNI-related traffic exists within the context of failed traffic operating conditions within the local road network, conditions that are collectively also the result of continuing growth in population, development, and tourism within the City of Coronado.

Traffic-related impacts to air and noise in the vicinity of NASNI have also been examined under worst case traffic conditions. While air and noise emissions would increase, the effects would not be significant.

ENVIRONMENTAL CONSEQUENCES OF CVN INFRASTRUCTURE IMPROVEMENTS AT BERTH LIMA

The SEIS analysis of environmental impacts of the proposed Berth LIMA infrastructure improvements focuses on potential effects to the following 4 resource areas: air quality, noise, biological resources, and marine water resources.

Air Quality

The US Environmental Protection Agency (EPA) designates all areas of the U.S. according to their status of compliance with the National Ambient Air Quality Standards (NAAQS). Each area is designated as being in attainment of (air quality better than or equal to) or in nonattainment of (air quality worse than) the NAAQS. State standards are also established by the California Air Resources Board (CARB) and are called the California Ambient Air Quality Standards (CAAQS). The CAAQS are at least as restrictive as the NAAQS and for certain pollutants include action thresholds that do not exist under national standards (CARB 2008a).

The San Diego area is in basic nonattainment for the federal ozone (O_3) standard (volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) are precursors to the formation of O_3). A basic nonattainment area is the area that exceeds the 8-hour ozone standard but is in attainment for the previous 1-hour ozone standard. The San Diego area is also considered a maintenance area for the carbon monoxide (CO) standard, and is in attainment of the federal standards for nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$). The San Diego Air Basin is in nonattainment of the state O_3, PM_{10} and $PM_{2.5}$ standards (CARB 2008b; EPA 2008).

The EPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emission thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year) vary from pollutant to pollutant and are also subject to the severity of the nonattainment status. In the project area, the applicable *de minimis* levels are 100 tons per year each for VOCs, NO_x, and CO. Estimated emissions associated with the proposed project have been calculated for O_3 precursors and CO and are well below *de minimis* levels and therefore a formal conformity determination is not required.

Noise

During the course of proposed construction activities, short-term, intermittent noise would occur in the immediate vicinity of the construction sites. Construction of the proposed facilities would require heavy equipment operations for grading, compacting, loading, unloading, placing materials, paving, and pile-driving. Equipment may include tractors, pile-drivers, loaders, forklifts, cranes, concrete pumps, rollers, and pavers. Diesel powered trucks would bring materials to the project site and remove the spoils from any required demolition or excavation.

Considering the dominance of aircraft noise and other existing noise sources (e.g., traffic noise) in the local environment, intermittent and short-term construction noise of the magnitude estimated above for the proposed construction activities would be negligible and would not appreciably alter the average baseline noise environment at noise-sensitive locations.

Biological Resources

Construction activities would create short term impacts in the localized area of the proposed infrastructure project at Berth LIMA. Resources potentially affected by the proposed project would include biological communities such as plankton, eelgrass and algae, invertebrates, fishes, birds, marine mammals, and sea turtles. Three species listed for protection under the federal Endangered Species Act (ESA) are: green sea turtle, California brown pelican and California least tern.

In-water construction to place 80 piles with armor stone between them to support new fendering for Berth LIMA would create turbidity from resuspended sediment and noise. It is estimated that the pile installation into the harbor floor would be completed within 30 days. Plankton and marine macrobenthic invertebrate communities in the proposed project area would temporarily be disturbed by the suspension of sediments resulting from this in-water construction. Disturbance would only take place during project activities and for a short time afterward while sediments settle. The rate of sediment settling would vary depending on the local oceanographic conditions during construction activities. The use of silt curtains would contain sediments in a localized area. As the resuspension of sediments would occur only for the project duration, and these marine resources are dynamic and constantly replenished, impacts from the proposed project would be temporary and localized. Noise and localized turbidity would likely cause fish to disperse away from the area. Noise from pile driving would not be at levels determined by National Marine Fisheries Service (NMFS) to harm fish hearing (> 180 decibels [dB]) more than a few feet away from where the pile is being driven (NMFS 2008). Thus, due to the mobility of these organisms and temporary, localized nature of disturbance, impacts to fish would be temporary and minimal. Essential Fish Habitat (EFH) for West Coast Groundfish and Coastal Pelagic Species is broadly identified along the entire coast of California, and includes the proposed project area. Construction would take place in groundfish and pelagic EFH habitats near NASNI. These construction activities associated with the proposed project would adversely affect EFH, but these effects are expected to be short term/temporary, localized, and adequately offset pursuant to the Magnuson-Stevens Act as determined in consultation with the NMFS. Therefore, they would not be significant under NEPA. Correspondence from NMFS, in which they state their concurrence with this finding, is included in Appendix M.

No marine mammals would be impacted by the proposed project as defined by the Marine Mammal Protection Act. As marine mammals are occasionally found in the proposed project area, those in the immediate vicinity of in-water construction activities could be temporarily displaced by noise associated with pile driving activities. Pile driving activities would result in underwater noise levels less than that determined to cause harm to pinnipeds by NMFS (190 dB [68 FR 64595]). Marine mammals are highly mobile organisms, and therefore, if disturbed by pile driving or vessel traffic would likely leave the area. To avoid or minimize potential effects to marine mammals, construction staff would be informed in writing of the possibility of such occurrences and the general appearance of the species. Upon detection of a marine mammal within 100 feet of the active construction site, staff would temporarily suspend activities until the animal moves to a distance of at least 100 feet from the construction area. Given the anticipated low levels of disturbance, limited abundance of these animals in the project region, and implementation of preventative measures, project activities would not adversely affect marine mammals. NMFS has reviewed these findings and provided correspondence, included in Appendix M, requesting that the Navy use the contacts provided in unlikely event a take occurs during construction.

Federally listed birds known to reside in or near the proposed project area include the California brown pelican and California least tern. Like other birds, these species are highly mobile, and if disturbed may leave the area. No nesting habitats would be impacted. The Proposed Action would have short-term, localized, and less than significant effects. Due to the mobile nature of these organisms and the absence of nesting areas near the project area, the proposed activities are not likely to adversely affect federally listed bird species. This determination for the California least tern by the Navy is covered within an active Memorandum of Understanding for the protection of this species between the Navy and United States Fish and Wildlife Service (USFWS). The Navy has received written concurrence from the USFWS on the finding of "may affect, not likely to adversely affect" the California brown pelican and California least tern (Appendix M).

Federally threatened green sea turtles are highly mobile organisms, and if transiting through the bay, they would likely avoid the project area. The Navy is monitoring tagged green sea turtles for presence and distribution in San Diego Bay through January 2009 as part of a joint Navy-Port of San Diego-NMFS effort to detect green sea turtles in the bay using hydrophone gates and acoustic tags (NAVFAC SW 2008a). The Navy/Port study has documented 36 acoustic tag detections of 5 green sea turtles south of Naval Amphibious Base since December 2007. The Navy has been in informal consultation with the National Oceanic and Atmospheric Administration (NOAA) since the beginning of the green sea turtle study. Interim findings indicate that green sea turtles do move randomly though the southern part of San Diego Bay and may loaf and forage as far north as the project site. One visual sighting of a green sea turtle within the project area has been confirmed. Therefore, the Navy along with the USACE have revised their ESA findings from "no effect" to "may affect" for the P-704 project at Berth LIMA at NASNI based on the potential rare occurrence of this species in the project area. To preclude adverse affect, the Navy will employ avoidance and minimization measures including, performance of a visual sweep of the project area, or of a 100-foot radius (whichever is greater) prior to commencing pile driving activities, and after a break in pile driving for more than 30 minutes. If any marine mammals or green sea turtles are seen within this visual range, the Navy will not commence pile driving activities until 15 minutes has passed since the last such sighting, or the animal has moved out of the established range. If a marine mammal or green sea turtle moves within this established range while pile driving activities are occurring, such activities can continue without interruption. Prior to the start of pile driving each day, after each break of more than 30 minutes, and if any increase in the intensity is required, the Navy will use a ramp-up procedure. This procedure involves a slow increase in the pile driving to allow any undetected animals in the area to voluntarily depart. The Navy, in consultation with NOAA, has determined that this will prevent adverse effects on this species. The Navy has received written concurrence from NOAA on the finding of "may affect, not likely to adversely affect" green sea turtles (Appendix M).

Marine Water Resources

Impacts to marine water quality from the proposed project would result from the driving of fendering piles. Pile driving activities are expected to be completed within approximately 30 days, although efforts would be made to complete this activity in the shortest time possible. The Navy would obtain all federal and state permits and the probable permit conditions that would reduce potential impacts to water quality would include the following:

- Pile driving would be performed using a jetting and/or hydraulic pile driver, which minimizes losses or spillage to adjacent waters;
- A silt curtain would be deployed around the pile driving area to restrict dispersion of suspended sediments;
- Water quality monitoring would be conducted during pile driving to ensure compliance with conditions specified in the water quality permit; results from monitoring would be reported to regulatory agencies on a regular (e.g., monthly) basis; and
- Monitoring of turbidity may be required to assess potential impacts from pile driving operations.

Pile driving operations are expected to generate localized and temporary turbidity plumes associated with re-suspension of bottom sediments. Increased suspended sediment concentrations would result in other water quality changes, such as reduced light transmittance and increased oxygen demand leading to reduced dissolved oxygen concentrations. However, pile driving operations would not cause persistent changes in dissolved oxygen concentrations or in other water quality parameters because sediments suspended during pile driving would settle to the bottom, and natural mixing processes would reduce any other localized changes to water quality, within a period of several hours after pile driving stops. Impacts to water quality would occur, but these would be short term and less than significant.

SUMMARY AND CONCLUSIONS OF SEIS ANALYSIS OF SHORELINE EROSION

In response to comments made by area residents during the SEIS scoping process, an assessment of the relative influence of San Diego Bay shoreline processes and CVN and other marine vessel movements on the erosion occurring along First Street in Coronado was undertaken. The analysis shows that the shoreline is a landform in continuous change. The erosional condition that currently exists along First Street is a result of natural conditions and historical alterations to the bay. A recent study of currents in San Diego Bay showed that dredging in the turning basin decreases the velocity of Bay currents by negligible amounts along the northern portion of First Street. The First Street area is not appreciably affected by dredging of the turning basin because currents in the bay are governed by the physical constraints of the entire bay (shape, size, and bathymetry), as well as oceanic inputs and outputs. Dredging in the turning basin does not promote the transport of sediments away from the shoreline along First Street. And while there is some debate about the effect of ship wakes on shoreline erosion, aircraft carrier and associated tug boat movements represent a negligible percentage of marine vessel traffic through the bay, such movements do not occur south of the turning basin, and they do not create substantial wakes. Therefore, the presence of homeported CVNs at NASNI does not appreciably affect erosion rates along First Street.

CUMULATIVE IMPACTS

NASNI is an active Navy base and the cities of Coronado and San Diego are busy and growing areas. As such, there are potential cumulative effects associated with the components of this SEIS when considered in combination with similar past, present and reasonably foreseeable future projects. While the cumulative impacts associated with the minor infrastructure improvements for Berth LIMA would not be significant, the cumulative effects of traffic would be. This SEIS evaluates cumulative effects of traffic for the future year 2015 and recommends potential traffic improvements, both external and internal to NASNI, and additional potential measures to reduce traffic congestion in the NASNI area.

Potential External Traffic Improvements

It is important to note that the homeporting of 3 CVNs adds only a few trips to the area roadway network that were not already evaluated when a third carrier was assessed in the 1999 FEIS. For example, the 1999 FEIS assessed 3 CVNs in port assuming 3,115 Sailors per ship while the 2008 Traffic Study assesses an updated number using 3,217 Sailors per CVN. As the resulting vehicular trips are within 3-4 percent of one another, the potential improvements presented herein address the cumulative traffic impacts from the overall growth in traffic on the study area transportation network (related to both NASNI and community activities).

When considering ways to mitigate cumulative effects in a project area, CEQ policy is to analyze the cause and effect relationship as to which effects may be minimized by designing mitigations to address that primary pathway. This calls for identification of the direct effects on a specific resource, in this case the Navy traffic directly identifiable on the main arteries onto and off of NASNI. An identifiable impact from NASNI-related commuters may be identified from Orange Avenue forward onto NASNI. During both A.M. and P.M. peak hours, there are 5 identifiable intersections where a cause and effect relationship may be studied and feasible mitigations designed. These include:

1. First Street and Alameda Boulevard
2. Fourth Street and Alameda Boulevard
3. First Street and Orange Avenue
4. Third Street and Orange Avenue
5. Fourth Street and Orange Avenue

These intersections were identified as appropriate candidates for potential traffic improvements because the logical destination for commuters using these intersections is NASNI during the A.M. peak period, with a similar reverse flow logic applied to commuters exiting NASNI in the P.M. peak period. As such, these intersections offer the most practicable application of possible mitigation strategies for directly addressing the impact of NASNI commuters on local roads.

The potential improvements would result in acceptable LOS conditions at all but 1 of the 5 intersections. The projected cumulative traffic flows at the intersection of Fourth Street / Orange Avenue cannot achieve LOS D or better conditions through intersection widening measures alone. The City of Coronado has been advocating further studies of improvements that involve grade separation options for this intersection. While the incremental traffic contribution of the CVN does not require these improvements, implementation of the grade separation option would improve traffic operations at the Orange Avenue intersections with Third and Fourth Avenues to acceptable LOS conditions.

Each of these potential improvements is under the jurisdiction of either the City of Coronado or the California Department of Transportation District 11 (CALTRANS) and would require funding and implementation through the appropriate agencies. The local funding of identified potential traffic improvements may sometimes include federal grants or Defense Access Road (DAR) certification for Department of Defense (DOD) funding, which would be administered through the local transportation organizations. The DOD does not provide funding or management of road improvements outside its property, except as may be authorized by law under the DAR Program, or special legislation. The DAR Program is the only authority the Navy has to address these recommended improvements. The Navy will submit requests for certification under the DAR Program to determine whether DOD can legally pay its fair share of the referenced potential traffic improvements.

There is no guarantee that certification from this program will be obtained. The DAR program itself does not have funds for such improvements. As with other construction programs, the funding for such improvements (if found eligible) would come through the annual appropriations request process. In the event certification by the DAR Program is not obtained, the Navy may seek other funding sources from special legislation.

Recommended Internal Improvements on NASNI

Two internal improvements on NASNI are recommended. The first recommended internal improvement is to reconfigure the First Street Gate (at First Street and Alameda Boulevard) to only 4 in-bound traffic lanes during the Navy A.M. peak-hour. This would involve an inbound only configuration on First Street during the A.M. peak-hour. This one-way configuration would minimize queuing at the First Street Gate by providing 4 lanes of inbound traffic during the morning peak period and provide eastbound traffic along Quay Road access to Exchange Way. During the P.M. peak-hour, the intersection would return to its normal operation with 2-way (inbound and outbound) traffic, but would still require manual traffic control. This recommended improvement would require installation of 2 signs along Quay Road to divert exiting traffic to the gate at McCain Boulevard during the A.M. peak period. In addition, traffic cones would be placed along Quay Road to merge both eastbound and westbound traffic during A.M. peak periods. Off-base this option would require manual traffic control at the intersection, and traffic cones would be laid out in the middle of the intersection to channelize the vehicles turning left from Alameda Boulevard during A.M. peak periods. This improvement would upgrade intersection conditions from LOS F to LOS A in the A.M. peak hour and from LOS F to LOS B in the P.M. peak-hour. It also reduces the formation of queues onto City of Coronado streets and most of the improvements are on NASNI and can be accomplished using Navy resources.

The second recommended internal improvement is at the intersection of Fourth and Alameda Boulevard. This improvement follows a traffic analysis that assumes the City will install a planned traffic signal in 2008. (It is noted that as a temporary measure before this signal installation, the Navy has used its personnel to manage exiting NASNI traffic by controlling or “stacking” vehicle movements, effectively mimicking future conditions with a signal installed at the intersection). The potential additional improvement would consist of adding an exclusive eastbound right-turn lane along McCain Boulevard for vehicles turning right onto Alameda Boulevard. This improvement would help separate exiting traffic from NASNI and improve the overall traffic flow through this intersection, especially during the P.M. peak-hour. Additional minor signal modifications (i.e., computerized traffic signal sequencing) will be needed. The recommendation improves intersection conditions from LOS F to LOS D in the P.M. peak-hour; most of the improvements are on NASNI: and the City of Coronado work only involves potential retiming of traffic signal and installation of sensors and sequencing equipment

Additional Potential Measures

Given the established effectiveness of staggered work times when 3 CVNs are in port simultaneously, the Navy could further reduce peak hour traffic volumes and improve intersection LOS by expanding the staggered work hour approach to the more frequent times when 2 CVNs are in port simultaneously. Similarly, voluntary early start times on days when only 1 CVN is in port would also help to expand the peak periods to avoid direct overlap with civilian peak hour traffic times in the community. To address comments received from the public, the Navy has also evaluated potential traffic calming measures for Third and Fourth Streets to slow traffic speeds and improve vehicle and pedestrian safety while maintaining roadway capacity. The concept includes pedestrian activated crosswalks and bulb-outs (curb extensions) placed at intersections outside the traffic lanes. Pedestrians would be positioned where they are more visible to oncoming traffic and the distance that pedestrians must cross would be shortened. The objective would be to maintain traffic flow in the travel lanes, while encouraging vehicles to travel at or near the posted 25 mph speed limit. These measures improve pedestrian safety, but do not impede traffic flow. These potential improvements are under the jurisdiction of either the City of Coronado or CALTRANS and would require funding and implementation through the appropriate agencies.

SUMMARY OF SEIS FINDINGS

With respect to traffic-related issues, the 2008 Traffic Study included in this SEIS shows that, while direct traffic impacts have not changed significantly since they were studied in the 1999 FEIS, there are likely to be significant cumulative impacts associated with traffic. The SEIS therefore analyzes several proposed traffic improvement measures that would potentially reduce traffic impacts substantially, in most cases to a level below applicable significance thresholds. With respect to proposed infrastructure upgrades at Berth LIMA, the SEIS identified no significant direct, indirect, or cumulative impacts. With respect to erosion potential, the SEIS identified no significant direct, indirect, or cumulative impacts.

Final
Supplemental Environmental Impact Statement
for Developing Homeport Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet

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CHAPTER 1
PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This document is a Final Supplemental Environmental Impact Statement (SEIS) prepared by the Department of the Navy (DON), in accordance with Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Part 1500); the National Environmental Policy Act (NEPA) (42 United States Code (USC) 4321); United States (U.S.) Navy procedures for implementing NEPA (32 CFR Part 775); Secretary of Navy Instruction (SECNAVINST) 5090.6A; and the guidelines contained in the Chief of Naval Operations Environmental and Natural Resources Program Manual Instruction (OPNAVINST) 5090.1C.

Consistent with the guidance provided in 40 CFR 1502.9, the purpose of this SEIS is to supplement the impact analyses contained in the Final Environmental Impact Statement (FEIS) for "*Developing Home Port Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet*" (the 1999 FEIS) in light of current circumstances and information. The SEIS analyzes information that was not available at the time the 1999 FEIS was completed, and focuses on potentially significant new circumstances or information relevant to environmental concerns that have occurred since the 2000 Record of Decision (ROD) for the 1999 FEIS (dated 28 January 2000, published in the Federal Register (FR) on February 8, 2000 (65 FR 6181) and hereafter referred to as the "2000 ROD"). The 2000 ROD is provided in Appendix A. Circumstances or information that have not undergone significant change since the 2000 ROD are not reexamined. By supplementing the 1999 FEIS, this SEIS advances NEPA's purpose of informing Navy decision-makers and the general public about the environmental effects of the government's action.

A primary focus of this SEIS is on vehicular traffic (hereafter referred to as traffic) and traffic-related issues. The document evaluates the effectiveness of traffic mitigation measures implemented pursuant to the 2000 ROD, and reevaluates the 1999 FEIS traffic impact analysis in light of new circumstances or information relevant to traffic conditions. Among these changes is an anticipated increase in the number of intermittent, nonconsecutive days each year (from 13 to 29) when the 3 nuclear powered aircraft carriers (CVNs) homeported at Naval Air Station North Island (NASNI) are in port simultaneously. The supplemental traffic analysis also addresses current information regarding local traffic conditions, personnel loading, and CVN operational deployment and maintenance schedules that could influence the number of days that 3 CVNs are simultaneously in port in any given year. Past, present and reasonably foreseeable future actions impacting traffic are also examined from a cumulative impacts perspective.

This SEIS also focuses on the potential environmental impacts associated with implementation of minor infrastructure improvements at a CVN berth, some of which were not required at the time of the 1999 FEIS. Specifically, the SEIS evaluates the infrastructure improvements included in military construction (MILCON) project (P-704) for Berth LIMA at NASNI. These proposed improvements include construction of a fendering system, mooring bollards, a CVN security building and Anti-Terrorism/Force Protection (AT/FP) improvements, as well as the installation of information systems, electrical and mechanical utility upgrades, paving, drainage, and site improvements. These infrastructure improvements are addressed in this document rather than in separate environmental planning documentation because the infrastructure improvements are only required because of the homeporting. The infrastructure improvements are essential components of the facilities and infrastructure required to support 3 homeported CVNs at NASNI. It is anticipated that the proposed construction projects at Berth LIMA would require from 12 to 18 months to accomplish.

Finally, this SEIS addresses public scoping comments (see Section 1.7) related to off-site shoreline erosion. During the scoping process, public comments relating to shoreline erosion along First Street in the City of Coronado were raised. Commenters stated that the erosion is caused by previous dredging activities and by wave action associated with ongoing boat and ship traffic in San Diego Bay. This SEIS responds to these comments by analyzing current erosion conditions in comparison to past and previously anticipated conditions.

1.2 BACKGROUND

The Navy decided in its 2000 ROD to create a homeport at NASNI to accommodate 2 additional CVNs (for a total of 3) in support of the Navy's Pacific Fleet Force Structure, and as subsequently recommended by the 2006 Quadrennial Defense Review (QDR). Homeports for 5 Pacific Fleet CVNs have already been assigned to Navy installations in the continental U.S. and overseas. The 6th CVN is currently undergoing maintenance at the Newport News Shipyard in Virginia. On 30 March 2007, the Secretary of Navy announced that USS CARL VINSON (CVN 70) would move its homeport to NASNI following the completion of a SEIS. The move would be consistent with the 2006 QDR, the 1999 FEIS, and the 2000 ROD, which analyzed and recorded the decision to create the capacity to homeport 3 CVNs at NASNI.

Carrier schedules are based on the dynamics of world events, deployment schedules, training exercises, and maintenance cycles. Individual CVNs are assigned to a specific homeport for multiple years and homeport assignment changes will occur over time. Historically, NASNI has been the homeport for 3 conventional aircraft carriers (CVs) and CVNs. NASNI has also supported minimal operational requirements for transient carriers. The 2000 ROD was implemented in 2004 upon the arrival of the third CVN. At this time, 2 CVNs are homeported at NASNI: USS RONALD REAGAN (CVN 76) and USS NIMITZ (CVN 68). Based upon Pacific Fleet requirements, NASNI needs to re-establish the third CVN homeport berth by improving and upgrading a CVN berth known as Berth LIMA along the existing quaywall to a fully capable modern homeport berth.

1.3 LOCATION OF HOMEPORT

NASNI (Figure 1-1) is located adjacent to the City of Coronado, in San Diego County, California. NASNI is surrounded by water on 3 sides (the Pacific Ocean to the west and San Diego Bay to the north and east) (Figure 1-2). The dominant waterfront location of NASNI is well suited to the complex mission of the activity and its supported fleet and shore-based units. The location allows direct air access to ships off-shore without overflight of urban development and provides convenient deep-water access for berthing of aircraft carriers and other large ships.

1.4 PURPOSE AND NEED

This is a supplemental document to the 1999 FEIS and 2000 ROD. The purpose of this document, per guidance provided under 40 CFR 1502.9, is to supplement the impact analyses contained in the 1999 FEIS. This SEIS compares the environmental conditions predicted in the 1999 FEIS to current circumstances and information. Where pertinent new information or potentially significant new consequences have developed following the 2000 ROD, additional analyses have been performed to ensure that Navy decision-makers and the public are well informed as to these circumstances and information relevant to the environmental consequences analyzed in the 1999 FEIS.

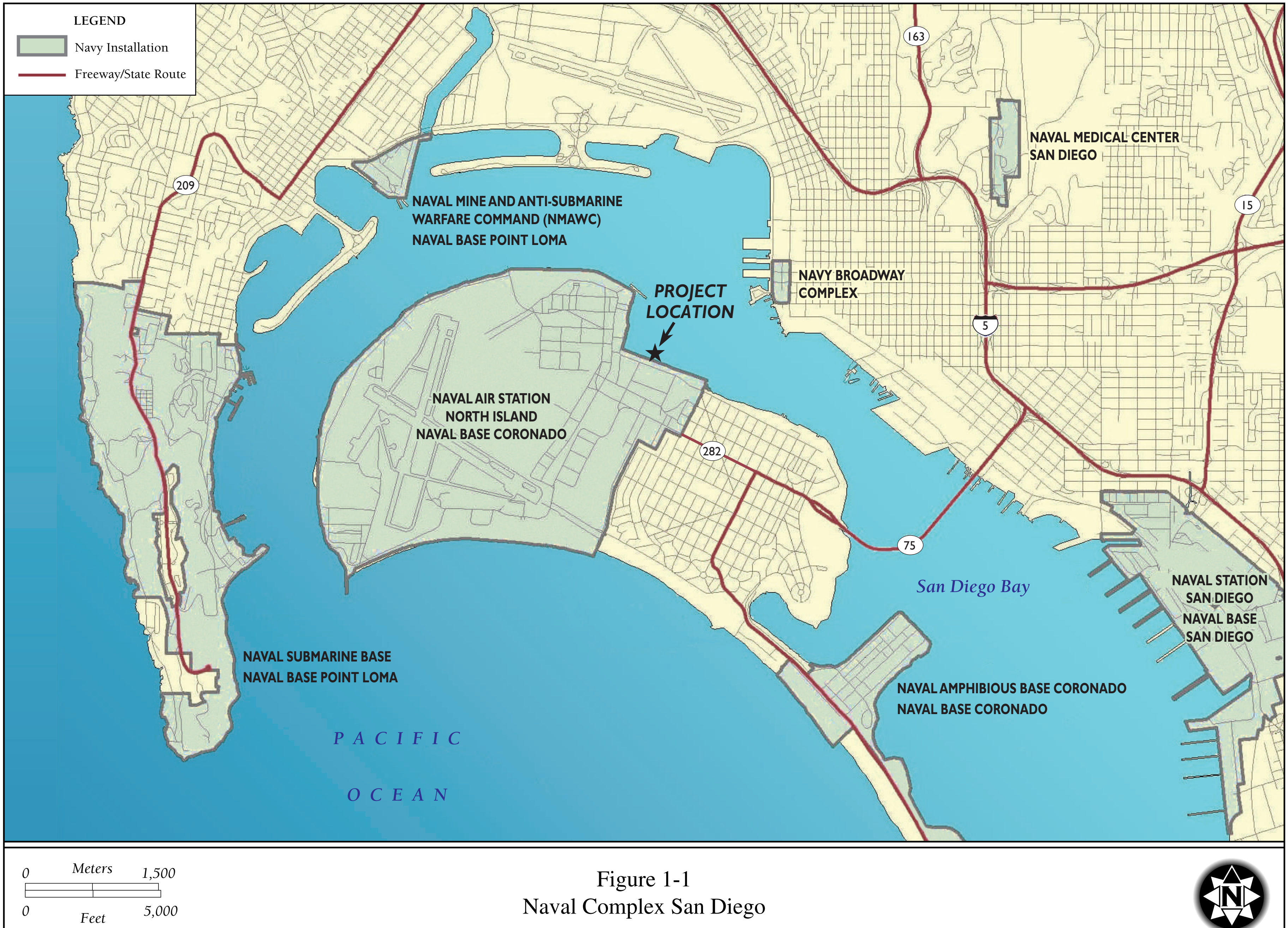

Figure 1-1
Naval Complex San Diego

Figure 1-2
Naval Station North Island

The purpose of the proposed minor infrastructure upgrades is to modernize and upgrade the existing CVN berth, Berth LIMA, to comply with current infrastructure design standards for a homeported CVN. The need is created by the publication and release of new design standards for CVN homeport berths and by normal infrastructure deterioration that has occurred over the last 9 years due to age, use, and exposure to the marine environment. These minor infrastructure upgrades require additional construction, infrastructure modernization, site improvements, and utility upgrades and are described in further detail under Section 2.2.1.

1.5 SCOPE OF THE SEIS

According to NEPA, CEQ regulations, and Navy procedures for implementing NEPA, agencies preparing an EIS should "focus on significant environmental issues" (40 CFR 1502.1) and should "reduce excessive paperwork by discussing only briefly issues other than significant ones" (40 CFR 1500.4). In addition, the amount of data and analyses provided in an EIS "shall be commensurate with the importance of the impact" (40 CFR 1502.15) and "impacts shall be discussed in proportion to their significance" (40 CFR 1502.b). Applying these guidelines to this SEIS, the baseline data and impact analyses focus on 6 environmental resource areas: ground transportation/circulation (traffic), air quality, noise, biological resources, marine water quality, and coastal processes (erosion). The SEIS only touches on other resource areas to the extent necessary to analyze the 6 principal resource areas.

The analyses presented in this document are organized to reflect the 3 primary issue areas: traffic and transportation, construction of new infrastructure improvements, and erosion comments expressed during public scoping. Chapters 3, 4, and 5 describe the affected environment and environmental impact analyses for traffic, infrastructure upgrades, and erosion, respectively. For each of these chapters, the affected resource areas are depicted as baseline conditions against which the supplemental action components were evaluated to yield an assessment of the resulting environmental effects. For each affected resource area, the level of detail used in the affected environment description is commensurate with the relative significance of any associated project impacts. In addition, the affected environment description for each resource area focuses on current conditions and any potentially significant changes in environmental conditions that have occurred since the 1999 FEIS. For a detailed description of those environmental conditions that have not changed appreciably since 1999, or for a more detailed introduction to specific attributes of each resource, the reader is referred to the appropriate sections in the 1999 FEIS. As a supplemental document, this SEIS avoids revisiting information from the 1999 FEIS that continues to be relevant.

In the course of selecting the 6 resource areas to carry forward for detailed discussion in the SEIS, Navy considered the 1999 FEIS and its background documentation (including the 1995 FEIS for establishing a homeport for 1 Nimitz-Class CVN). Where a particular environmental resource is not discussed, the Navy determined there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts as discussed in the 1999 FEIS, or the issue was not raised during public scoping. In addition, construction of the proposed minor infrastructure upgrades will not impact those other resource areas to any potentially significant extent. Therefore, per CEQ guidelines referenced above, those other resource areas are not carried forward for further discussion in this SEIS.

The projected increase in the average number of intermittent, nonconsecutive days (from 13 to 29) in an average year when 3 CVNs are in port simultaneously is addressed primarily in the context of the new traffic impact considerations. Other consequences of the increase in average days in port are minor, and were covered adequately in the 1999 FEIS.

1.6 PREVIOUS CVN NEPA DOCUMENTS

The background and history of mitigation implemented as a result of previous CVN NEPA analyses are summarized below because they influence the scope of the analysis presented in this SEIS.

1.6.1 Final Environmental Impact Statement for Development of Facilities in San Diego/ Coronado to Support the Homeporting of One Nimitz-Class Aircraft Carrier (1995 BRAC FEIS)

In 1993, the Base Realignment and Closure (BRAC) Commission recommended to the President 130 bases for closure and 45 bases for realignment. Naval Air Station (NAS) Alameda was one of the recommended bases to be closed. As a result of this closure, a CVN was relocated to NASNI.

The Proposed Action evaluated in the 1995 BRAC FEIS analysis included 6 separate construction projects for facilities and infrastructure necessary to support 1 CVN and preserve the existing capacity to accommodate 1 transient CVN at NASNI. Homeporting a CVN required: (1) dredging of the carrier berths, turning basin, and the San Diego Bay channel (consisting of the inner channel and the outer channel); and (2) constructing a bay fill area, a carrier wharf, depot level maintenance facilities, and support utilities. These projects took approximately 5 years to construct and USS JOHN C STENNIS (CVN 74) arrived in 1998.

The carrier berths and turning basin, originally at a depth of 42 feet below mean lower low water (MLLW), were dredged to a depth of 50 feet below MLLW. The inner channel was dredged to 47 feet below MLLW, and the outer channel was dredged to 55 feet below MLLW. The outer channel extends south from Point Loma for 2.2 miles until the natural water depth reaches 55 feet below MLLW. A total of approximately 9 million cubic yards (cy) of sediment was dredged and disposed of at several locations. Of that amount, 70,000 cy of sediment adjacent to the existing quaywall was found to be unsuitable for ocean disposal and was used as backfill in the bay fill area of the north shore of North Island between Moffett Road and a small sandy bluff 2,400 feet from Moffett Road. In addition, approximately 40,000 cy of sediment dredged from the rock dike foundation and 150,000 cy of sediment dredged from an eelgrass mitigation site were also used as backfill in the same bay fill area.

Bioaccumulation studies indicated that the remaining dredged material located in the berthing area was suitable for ocean disposal and was disposed of at the U.S. Environmental Protection Agency (EPA) approved Ocean Disposal Site (LA-5), located approximately 5 miles southwest of Point Loma.

The amount of construction was extensive and the 1995 ROD specified several mitigation measures that were implemented. A summary follows:

<u>Transportation Mitigation Under the 1995 ROD:</u>

<u>Mitigation:</u>

- To reduce parking congestion on city streets near the base, the use of an existing parking lot on NASNI property at the corner of First Street and Alameda Boulevard was designated for use by military and civilian employees whose automobiles do not meet criteria for general access to the base.

  <u>Status:</u>

  - The mitigation measure was implemented near the Third Street and Alameda Boulevard intersection and the First Street and Alameda Boulevard intersection.

Mitigation:

- The Navy programmed a MILCON project (P-759) for a new entrance to NASNI, at the end of Third Street in the City of Coronado.

  Status:

  - The new Main Gate named the Stockdale Gate was opened for use on 9 July 2007.

Mitigation:

- Barging equipment and material (rather than trucking equipment through the City of Coronado) was a major consideration for the construction contracts to be awarded for this project.

  Status:

  - The Navy barged bulk materials such as sand and aggregate across the San Diego Bay. This mitigation reduced the travel distance for the materials and eliminated multiple truck loads. Due to the success of this mitigation, the Navy has implemented this process for other large quantity bulk material movement in local contracts since the 1995 ROD.

Mitigation:

- Encouragement of ride sharing and use of mass transit.

  Status:

  - Free passenger ferry service exists between downtown San Diego and NASNI. Shuttle service from the NASNI North Island ferry terminal to work sites on base is in place.
  - Park and Ride sites at Imperial Beach and NAS Miramar were also implemented.
  - Other ridesharing and mass transit actions have been implemented to complement this measure, including premium parking spaces reserved for car pools, institution of van pools, guaranteed rides home for car and van pool riders as well as discounted mass transit fares.

The analysis in the 1995 BRAC FEIS indicated that traffic and socioeconomic impacts associated with the proposed CVN homeporting at NASNI were not significant because there had historically been 3 CVs homeported at NASNI. A CVN has a personnel complement of approximately 102 personnel more than a CV. The depot-level maintenance facilities would increase personnel complement to an average of 750 personnel for a 6-month maintenance availability period every 24 months. It should be noted that these personnel are transported to work on NASNI via buses, not individual vehicles. In addition, comparing the full-buildout year of 1999 with the baseline year of 1992 indicated an overall decrease of 330 personnel at NASNI.

1.6.2 Final Environmental Impact Statement (FEIS) for "Developing Home Port Facilities for Three NIMITZ-Class Aircraft Carriers in Support of the U.S. Pacific Fleet" (1999 FEIS)

The 1999 FEIS explained that as CVs reach the end of their service life and are replaced by CVNs, the Navy has a need to create the capacity to homeport CVN assets. Compared to the CV, the CVN is a newer class of aircraft carrier with a wider beam, a deeper draft, and different shore maintenance and support requirements. Consequently, a CVN homeport requires different shore infrastructure than that provided for a CV. The U.S. Pacific Fleet was planning for the replacement of 2 CVs assigned within the U.S. Pacific Fleet with 2 CVNs.

Four locations within the Pacific Fleet were considered as feasible locations for the development of CVN homeport capacity. The 4 locations considered were: NASNI Coronado, CA; Puget Sound Naval Shipyard (PSNS) Bremerton, WA; Naval Station (NAVSTA) Everett, WA; and Pearl Harbor Naval Shipyard (PHNSY) Pearl Harbor, HI. Using these 4 locations, 6 alternative configurations for creating the necessary CVN homeport capacity were studied, including a no action alternative.

Alternative Two was the alternative selected in the 2000 ROD, creating homeport capacity for 2 additional CVNs at NASNI, bringing the total CVN homeport capacity at NASNI to 3. Under Alternative Two, the CVN homeport facilities at PSNS Bremerton were also upgraded to meet current standards and NAVSTA Everett remained a CVN homeport. Implementation of Alternative Two at NASNI included the demolition of existing Pier J/K, which was replaced by a wharf to accommodate a CVN berth. Approximately 582,000 cy of sediment were dredged to meet depth requirements for the access lanes to the west of the turning basin. Most of the material was deposited at an in-bay location south of the Naval Amphibious Base (NAB) to create an NAB Habitat Enhancement Area, and some of the material was used as fill for the wharf. A 1.5 to 2.5 acre intertidal habitat was created from an upland site to compensate for intertidal/subtidal habitat filled as part of the wharf construction. Berthing for a second additional CVN was identified along the section of the existing quaywall currently serving as the transient berth for CVNs not homeported at NASNI (Berth LIMA). No dredging was required to convert the transient berth to a permanent berth for the second additional CVN. Utility upgrades and additional fencing were required. Consequently, USS NIMITZ (CVN 68) arrived in 2001 and USS RONALD REAGAN (CVN 76) arrived in 2004, fulfilling the 2000 ROD provision to homeport 3 CVNs at NASNI.

<u>Summary of Mitigations Under the 2000 ROD</u>

> The 2000 ROD specified that traffic impacts were less than significant but that mitigation would be implemented for the average 13 intermittent, nonconsecutive days per year when 3 CVNs assigned to NASNI were simultaneously in port. The 2000 ROD specified that mitigation measures may include measures such as staggering work hours, encouraging carpools and vanpools, and subsidizing the use of public transportation by military personnel and civilian employees. The 2000 ROD further stated that the "DON will monitor the effectiveness of these traffic mitigation measures. If the mitigation measures are not successful and traffic associated with the presence of a third homeported CVN creates a significant adverse effect on traffic conditions in the City of Coronado, DON will develop additional mitigation measures." The traffic analysis conducted to support this SEIS provides the necessary information to evaluate the effectiveness of these traffic mitigation commitments.

1.7 OTHER SOURCES OF NEW INFORMATION

1.7.1 City-Wide Major Traffic Study Final Report

In March of 2005, the City of Coronado released an updated assessment of traffic conditions in the City of Coronado. Information contained in the City-Wide Major Traffic Study Final Report (City of Coronado 2005), was based upon traffic data collected in July and August of 2003 and aligned to allow data collection when 2 carriers were in port. The report used the regionally accepted San Diego Association of Government's (SANDAG's) Series 10 Model for projecting 2015 and 2030 traffic conditions. A total of 56 intersections and 71 roadway segments were studied.

1.7.2 State Routes (SR) 75/282: Transportation Corridor Project Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR)

The SR 75/282 Transportation Corridor Project (SR 75/282 TCP) is a local transportation proposal of potential future transportation system improvements and alternatives to address traffic and congestion on the SR 75/282 transportation corridor, the main traffic arteries into Coronado. The City of Coronado and the California State Department of Transportation District 11 (CALTRANS), as the project's action proponents, are the local agencies with executive authority over local transportation systems, design and solutions. The project combines an engineering study, a Project Report, with an environmental planning document, an EIR/EIS. The Navy is a Cooperating Agency for the development of the EIS, supplying specialized expertise on AT/FP, security, and federal (military) land-use polices.

The SR 75/282 TCP EIS analyzes the entire system and offers a series of potential solutions including Travel Demand Management/Transportation Systems Management (TDM/TSM), Grade Separations, Cut and Cover Tunnels, and Twin Bore Tunnels. The purpose of this project is for local transportation authorities to study the traffic system and select a set solution that is technically feasible and able to be implemented by the 2 action proponents, the City of Coronado and CALTRANS. The SR 75/282 TCP EIS is in the development process and a specific transportation improvement project or series of projects has not yet been selected. This SEIS also studies traffic, as an impact from a military homeporting point of view, and offers solutions that would be complimentary to those that are identified and implemented in the future by the City of Coronado and CALTRANS.

1.7.3 U.S. Army Corps of Engineers, Los Angeles District Coronado Shoreline Initial Appraisal Report December 7, 2000

On December 7, 2000, the U.S. Army Corps of Engineers (USACE) Los Angeles District produced an Initial Appraisal Report on the Coronado shoreline. The purpose of the report was to develop information to be used in future decision documents that would determine the Federal Interest, if any, in providing protection from erosion to about 0.5 mile of San Diego Bay shoreline on the northeast side of the City of Coronado. The report discussed erosion in the area, including the effects of wave energy created by boats and ships within the navigable channel off-shore of the study area, and the relatively steep off-shore slope. This initial appraisal study was followed by another appraisal report of the same shoreline area in 2005 as referenced in Section 1.7.4 below.

1.7.4 U.S. Army Corps of Engineers, Los Angeles District Coronado Shoreline San Diego County, California Reconnaissance Study Initial Appraisal Report September, 2005

In September 2005, the USACE Los Angeles District produced a Reconnaissance Study Initial Appraisal Report on the Coronado shoreline. The purpose of the report was to develop information to be used in future decision documents that would determine the Federal Interest in providing protection from erosion to about 0.5 mile of San Diego Bay shoreline on the northeast side of the City of Coronado. The report discussed erosion in the area, including the effects of wave energy created by boats and ships within the navigable channel off-shore of the study area, and the relatively steep off-shore slope.

The 2000 USACE report recommended "that this study proceed forward into a cost shared feasibility level evaluation of shoreline protection alternative [sic] for the Coronado Shoreline, at an equal federal/non-federal cost share ratio…"

The 2005 USACE report reversed this determination and recommended "terminating the Coronado Shoreline Study" because "upon further investigation, it was determined that there is no Federal interest and responsibility set forth in the legislative authorities under the continuing program from vessel generated wave wash."

1.8 PUBLIC INVOLVEMENT

Public comment on the scope of this SEIS was solicited pursuant to federal requirements (40 CFR 1508.22). A Notice of Intent (NOI) was published in the Federal Register Volume 72, Number 201, Pages 59084-59085 on October 18, 2007, which specified that comments must be received on or before November 19, 2007. In response to local wildfires in the San Diego area, the DON decided to extend the normal 30-day scoping period. A second notice was published in the Federal Register Volume 72, Number 218, Page 63891 on November 13, 2007, indicating that the public comment period had been extended through December 3, 2007 for a total of 47 days.

1.8.1 SEIS Scoping

The scoping process for this SEIS invited the participation of federal, state, and local agencies and other interested persons to identify the scope and significance of issues related to the SEIS. Public notices informing the public of the scoping period were published in the following newspapers:

- San Diego Tribune on October 19, 20 and 21, 2007 (in English)
- Coronado Eagle on October 24, 2007 (in English)
- La Prensa San Diego on October 26, 2007 (in Spanish)

In addition to these notices, a press release was issued by the Commander, U.S. Naval Air Forces (CNAF) to local and regional media. The CNAF website was updated with information on the SEIS and scoping period. Navy also developed a publicly-accessible website (http://www.nimitzcarriersseis.com) that contained information about the SEIS process. An electronic option for submitting comments during the scoping period was also provided.

The Office of Legislative Affairs sent letters to the Congressional delegation for the State of California informing them of the Navy's intent to supplement the 1999 FEIS document. The Assistant Deputy Chief of Staff for Operational Readiness and Training, U.S. Fleet Forces (USFF), sent letters to California state officials and local mayors, and the Director of Fleet Training, USFF, sent letters to agencies and local officials. Notices were also sent to organizations and individuals that had commented on the 1999 FEIS, informing them that a supplemental document was being prepared and specified the scoping period for the supplemental document.

During the scoping period, Navy received a total of 87 comments. Commenters included 3 Congressional representatives, 4 agency representatives, 2 interest group members, and 78 members of the public.

1.8.1.1 Summary of Public Scoping Comments

The Navy reviewed and evaluated comments received during the scoping process to focus the content of the SEIS. During the official scoping period, 87 comments were received; 69 by email, 14 by letter, and 5 by telephone, one individual provided the same comment using 2 media.

The primary issues presented by public comment within the scoping process included:

1. erosion due to previous dredging, and
2. vehicular traffic impacts resulting from the addition of personnel associated with a third aircraft carrier at NASNI.

Public comments identified or submitted during the scoping period are summarized in Table 1.8-1. Comments were related to a variety of environmental issue areas that are addressed in this SEIS.

1.8.1.2 Summary of Federal and State Agency/Organizations/Representatives Scoping Comments

In addition to the public comments, federal and state agencies provided comments on the Navy's proposal. These agencies included the U.S. Coast Guard (USCG), SANDAG, and U.S. EPA Region 9. All comments received from agencies were in the form of letters or phone calls. The comments from these entities included administrative procedures, regulatory guidance, vessel traffic data, and requests for future review of the SEIS. Table 1.8-1 provides a summary of these comments.

Table 1.8-1 Comments Received During Scoping Period

Topic	Synopses of Comments Received	Total Comments Received[(1)]
Erosion and Dredging	Commenters suggested that erosion may be caused by previous dredging and by wakes from ongoing boat and ship traffic in San Diego Bay.	67
Vehicular Traffic	Commenters stated there is a traffic congestion problem in the vicinity of NASNI and that this issue needs to be addressed.	7
Air Emissions	A commenter requested that the Navy consider "the project's greenhouse gas emissions and global warming implications.	2
Wastewater	A commenter suggested that the Navy should analyze the current sewer system. In a letter, the commenter stated NASNI has an old sewer system that already, in some cases, is failing and is in need of upgrading. The commenter suggested that the base needs an improved capacity to hold sewer/waste on-base (in the event that the city needs to do maintenance on their "downstream" system, or if there is an emergency), and Navy should provide the city with a current sewer and storm water master plan that will cover all improvements that are anticipated under this project, the above cited conditions, and future projects. The issue of odor from the sewers was also cited. Finally, the commenter suggested that the Navy should develop sewer flow capacity studies.	1
Safety	A commenter stated that with the third carrier, San Diego faces a greater threat of attack and of damage occurring to a nuclear vessel.	1
Visual Impacts	A commenter stated that the addition of the carrier could create a situation where ships will extend across civilian property blocking bay views."	1
Vessel Traffic	Commenters stated that there are no conflicts with regards to vessel traffic impacts as it relates to the project.	2
Procedural	Commenters expressed interest in which agencies should be informed about the SEIS, the number of characters that are allowed on the website comment page, request for information and confirmation that the website was working as intended.	9

[(1)]Some commenters commented on more than one topic and commented several times.

1.8.2 Draft SEIS Public Comment Process

1.8.2.1 Public Hearing

The public hearing process provides opportunity to evaluate the Draft SEIS and provide comments. Throughout the Draft SEIS public hearing process, comments on the Draft SEIS were received and compiled for consideration during the preparation of the Final SEIS. The 45-day Draft SEIS public comment period began when the Notice of Availability (NOA) and Notice of Public Hearing (NOPH) were published in the Federal Register (Volume 73, No. 154, pages 46249, 46250, 46269) on August 8, 2008 (see Appendix J). The 45-day comment period ended on September 22, 2008.

The Navy provided notifications of the NOA and NOPH to members of the public who had requested notification during the scoping period and invited comments on the Draft SEIS. The Navy sent notification letters to federal, state, and local government agencies; elected officials; and additional interested agencies, organizations, and individuals that had identified themselves by submitting comments during the scoping process or by requesting notification. The notification package included information about the NOA and public hearing.

Concurrent with publication in the Federal Register, paid advertisements providing notification of the NOA, public hearing and open house informational session, and the locations where the Draft SEIS was available for review were published in local and regional newspapers listed in Table 1.8-2, shown in Appendix J, and were posted on the project website (http://www.nimitzcarriersseis.com). The Navy also communicated public hearing dates to local print, television and radio media, and internet news sources. Prior to the start of the public informational session, the Navy conducted a media availability event for local print and television media. This event gave the media an opportunity to view the display stations and fact sheets that were available for the public hearing and to interview Navy personnel. Local news media ran several stories around the public hearing.

Table 1.8-2 Newspapers Publications of NOA and NOPH

Name of Newspaper	Dates of Publication	Language of Publication
San Diego Tribune	August 8, 28, 31 and September 2, 2008	English
Coronado Eagle	August 8 and August 29, 2008	English
La Prensa San Diego	August 13 and August 27, 2008	Spanish

The project website was updated concurrently with the publication of the NOA and NOPH in the Federal Register. The project website provided information such as the NOA, the NOPH, electronic copies of the Draft SEIS, locations where electronic and paper copies of the Draft SEIS were available locally (Table 1.8-3), the public hearing location and time, and an opportunity for members of the public to provide written comments electronically.

Table 1.8-3 Draft SEIS Public Review Locations

Location	Address
San Diego Public Library	820 E Street, San Diego, CA 92101
Coronado Public Library	640 Orange Avenue, Coronado, CA 92118
San Diego Public Library, Point Loma/Hervey Branch Library	3701 Voltaire St., San Diego, CA 92107-1606
San Diego County Library, Imperial Beach Branch	810 Imperial Beach Blvd., Imperial Beach, CA 91932
National City Public Library	1401 National City Blvd., National City, CA 91950
Chula Vista Library, Civic Center Branch	365 F Street, Chula Vista CA 91910

The public hearing was held at the Coronado Community Center, Nautilus Banquet Room, 1845 Strand Way, Coronado, CA on September 3, 2008. The hearing was preceded by a public open house informational session between 3:00 and 6:00 P.M., followed by formal presentation and public hearing from 6:00 to 9:00 P.M. The public hearing provided interested parties an opportunity to review the Draft SEIS and informational materials, ask questions about the draft, voice specific concerns to project representatives, submit written comments, and provide verbal comments as part of the public hearing. Sixty-three people attended the public hearing or open house, with 21 people providing verbal comments as part of the public hearing and 8 people submitted written comments.

1.8.2.2 Public Comments on the Draft SEIS

The Navy received comments throughout the 45-day public comment period from 49 people; including, 3 elected officials, 11 federal, state, and local government agency representatives, 4 organization representatives and 31 individuals. Many commenters provided comments using more than one method and comments received by all methods totaled 55. In addition to the 29 verbal and written comments submitted at the public hearing, 9 were submitted via the project website, 12 letters were submitted, and 5 comments were emailed. A summary of the comment method and number of comments received is provided in Table 1.8-4.

Table 1.8-4 Number of Comments Received During the Public Comment Period and Public Hearing

Comment Method	Comments
Public Hearing – Verbal Comments	21
Public Hearing - Written Comments	8
Project Website	9
Letters	12
Emails	5
TOTAL	54

Most of the public comments submitted related to either traffic or shoreline erosion near First Street. Table 1.8-5 provides a summary of issues by category. These comments have been addressed in the Final SEIS. Comments received during the public comment period, and the Navy's responses to these comments, are included in their entirety in Appendix K. Comments received are grouped by the respective commenter. When a commenter used more than one method to make comments, all methods (letter, email, or oral comments at the public hearing) are provided and grouped together under the same commenter. The complete transcript of oral comments from the public hearing on September 3, 2008 is provided in Appendix L.

Table 1.8-5 Comments Received on the Draft SEIS

Topic	Synopses of Comments Received	Total Commenters(1)
Vehicular Traffic	Requests Navy to help address traffic congestion problems in the vicinity of NASNI.	20
	Improve utilization of mass transit and rideshare by NASNI workers.	7
	Enforce traffic laws and improve pedestrian safety.	6
	Traffic mitigation improvements should not create problems elsewhere.	3
Erosion	Commenters stated that erosion near First Street was caused by previous dredging and by wakes from ongoing boat and ship traffic in San Diego Bay and requested Navy assistance with solving the shoreline erosion problem that is damaging property.	15
Air Emissions	A commenter expressed concern about vehicle emissions near NASNI.	1
Wastewater	A commenter questioned the capacity and condition of the current sewer system at NASNI.	1
Safety	A commenter stated that with the third carrier, San Diego faces a greater threat of a terrorist attack.	1
Visual Impacts	A commenter stated that the addition of the carrier could create a situation where ships will extend across civilian property blocking bay views.	1
Other	A commenter complained about a waiting list for childcare at NASNI.	1
	Commenters believe the SEIS adequately addresses impacts.	2

(1)Some commenters commented on more than one topic and commented several times.

1.9 INTERAGENCY COORDINATION

During the development of the SEIS, the Navy coordinated with the following resource and regulatory agencies:

- United States Army Corp of Engineers (USACE)
- United States Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- California Regional Water Quality Control Board (RWQCB)
- California Coastal Commission (CCC)

NMFS, USFWS, and the CCC have sent coordination letters indicating concurrence with Navy findings; this correspondence is provided in Appendix M.

1.9.1 Federal and State Agency Comments on the Draft SEIS

The Navy received comments on the Draft SEIS from the following federal and state review agencies (Appendix K):

- EPA
- NMFS
- CALTRANS
- Native American Heritage Commission

In their comment letter, the EPA gave the Draft SEIS its best rating; "Lack of Objections". This means the EPA has not identified any environmental impacts that would require substantive changes to the proposal. The EPA acknowledged the Navy's current traffic mitigation measures and Transportation Incentive Program (TIP) and commended the Navy for including drainage improvements in project plans. In their comment letter, NMFS concurred with projected impacts and impact avoidance measures that the Navy identified in the SEIS. In their comment letter, CALTRANS agreed with the methodology used in the traffic analysis. Finally, the Native American Heritage Commission provided a list of Native American contacts that have knowledge of cultural resources in the project area. These comment letters and the Navy's responses are provided in Appendix K.

1.10 CHANGES FROM THE DRAFT SEIS TO THE FINAL SEIS

The following updates have been incorporated into the Final SEIS:

- Notices published announcing the availability of the Draft SEIS and scheduling of the public hearing are discussed in Section 1.8.2 and copies have been included in Appendix J.
- Public comments received during the 45-day public comment period from oral and written statements at public hearings, from the project website, and from written correspondence, together with the Navy's response to those comments are discussed in Section 1.8.2 and included as Appendix K.
- Coordination efforts with regulatory agencies are updated in Sections 1.9, 4.3.2, 6.2.5, 7.1.1 and Appendix M.
- Additional information on NASNI commuter participation in the Navy's rideshare and mass transit incentive program has been added to Section 3.1.5.2 and in Table 3.1-10.
- The Navy has evaluated potential traffic calming measures to improve vehicle and pedestrian safety on Third and Fourth Streets to address comments received from the public. These potential improvements are under the jurisdiction of either the City of Coronado or CALTRANS and would require funding and implementation through the appropriate agencies. The concept is discussed in Section 6.2.5 and includes pedestrian activated crosswalks and bulb-outs (curb extensions) placed at intersections at up to 5 locations along the corridor. The potential locations are where there are existing crosswalks on Third and Fourth Streets at their intersections with I Avenue and F Avenue and at Fourth Street and Glorietta Boulevard.
- Additional information about the Navy's thorough study of the shoreline erosion issue at First Street, including review of the USACE reports of 2000 and 2005, has been included in Chapter 5 *Erosion Along First Street Shoreline.*

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CHAPTER 2
DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the Proposed Action and the No Action alternatives. The Proposed Action from the 1999 FEIS has been implemented except for some minor infrastructure upgrades, some of which were not required at the time of the FEIS. Therefore, the Navy proposes to implement those minor infrastructure upgrades in order to meet current Navy requirements.

The Navy's analysis of the existing CVN homeport facilities and infrastructure at NASNI included a summary of specific construction projects needed to satisfy the requirements set out in the Naval Sea Systems Command and Naval Facilities Engineering Command guidance documents and AT/FP guidance documents. There are no practical alternatives to these requirements, as current guidelines require these features for a homeport berth. Consequently, no alternatives to the minor infrastructure upgrades are discussed.

2.2 CARRIER HOMEPORTING AT NASNI

NASNI occupies approximately 2,800 acres on the tip of the Silver Strand Peninsula at the entrance to San Diego Bay. North Island was commissioned a NAS in 1917, when Congress appropriated the land and 2 airfields were constructed on its sandy flats. The Navy presence began with a tent-covered compound known as "Camp Trouble". The Navy shared the island with the Army Signal Corps' Rockwell Field until 1937, when the Army left and the Navy expanded its operations to cover the entire air station. The station, which until 1955 was called NAS San Diego, was granted official recognition as the "Birthplace of Naval Aviation" by a resolution of the House Armed Services Committee on August 15, 1963.

In the early 1920s, Navy constructed USS LANGLEY, the first Navy aircraft carrier. In 1924, USS LANGLEY was homeported at NAS San Diego, which initiated the continuous use of North Island as the homeport for Pacific Fleet carriers. North Island rapidly assumed the expanded role of providing services and training for assigned carriers and support personnel. By 1935, North Island was home to all 4 of the Navy's carriers: USS LANGLEY (CV 1), USS LEXINGTON (CV 2), USS SARATOGA (CV 3) and USS RANGER (CV 4).

NASNI has provided the requisite facilities and infrastructure to homeport 3 aircraft carriers since World War II. Over the ensuing years, these facilities and infrastructure have been modernized to keep pace with the increased requirements generated by evolving aircraft carrier ship design and operational capabilities.

From 1978 through to 1993, NASNI was home to 3 CVs. In 1993, the decommissioning of USS RANGER (CV 61) resulted in the homeporting total being reduced to 2 carriers while awaiting USS RANGER's replacement. In 1998, USS JOHN C. STENNIS (CVN 74), a Nimitz-class CVN, was homeported at NASNI in final execution and fulfillment of the 1995 ROD.

The 2000 ROD documented the decision to establish additional capabilities to homeport 3 CVNs at NASNI. The remaining 2 CVs were replaced with CVNs. In 2001, the next CVN, USS NIMITZ (CVN 68), arrived at NASNI making the composition of carriers at NASNI 2 CVNs and 1 CV. In 2004, USS

CONSTELLATION (CV 64) was decommissioned and replaced by USS RONALD REAGAN (CVN 76), in final execution and fulfillment of the 2000 ROD provision to homeport 3 CVNs at NASNI.

In 2005, USS CARL VINSON (CVN 70) changed homeport from the West Coast to the East Coast for refueling and major maintenance. USS JOHN C. STENNIS changed homeport from NASNI to Naval Base Kitsap, Bremerton, Washington to replace USS CARL VINSON and redistribute Pacific Fleet assets. There are currently 2 CVNs homeported at NASNI. On March 30, 2007 the Secretary of the Navy announced that USS CARL VINSON (CVN 70) would move its homeport to NASNI following the completion of a SEIS. The move is consistent with the 1999 FEIS and the 2000 ROD as it will re-establish 3 CVNs at NASNI.

Table 2.1-1 demonstrates the relative consistency of the number of carriers homeported at NASNI over the last 30 years. It also demonstrates the transition from CVs to CVNs.

Table 2.1-1 Aircraft Carriers Homeported at NASNI

Year	Number of CVs	Number of CVNs	Total Aircraft Carriers
1978-1991	3	0	3
1992	3	0	3
1993	2	0*	2*
1994	2	0*	2*
1995	2	0*	2*
1996	2	0*	2*
1997	2	0*	2*
1998	2	1	3
1999	2	1	3
2000	2	1	3
2001	1	2	3
2002	1	2	3
2003	1	2	3
2004	0	3	3
2005	0	3	3
2006	0	2**	2**
2007	0	2**	2**

**As noted in Section 1.6.1 of this SEIS, 1993 BRAC recommended that NAS Alameda be closed and USS JOHN C STENNIS (CV 74) be relocated to NASNI. USS JOHN C STENNIS (CV 74) did not arrive until 1998 when facilities and infrastructure required to homeport a CVN were completed.*
***maintenance action for west coast CVNs required redistribution of Pacific Fleet assets while CVN 70 was undergoing overhaul.*

2.3 PROPOSED ACTION

This SEIS is prepared for the limited purpose of supplementing the 1999 FEIS with current circumstances and information. The Proposed Action analyzed in the 1999 FEIS was executed in 2004, pursuant to the 2000 ROD to homeport 3 CVNs at NASNI. This SEIS does not propose any changes to the Proposed Action analyzed in the 1999 FEIS. However, this SEIS does analyze minor infrastructure improvements necessary to meet current Navy standards for CVN homeport facilities. Although not significant in themselves, these minor infrastructure improvements, which would take from 12 to 18 months to accomplish, are connected to the action analyzed in the 1999 FEIS and are therefore included in this SEIS.

The modernization and upgrade projects (Figure 2-1) listed below are necessary to bring the Berth LIMA (designated homeport berth) into conformity with Naval Sea Systems Command and Naval Facilities Engineering Command guidelines; Unified Facilities Criteria (UFC) 4-159-03, Policy and procedures for design of moorings for U.S. Department of Defense vessels; Interim Technical Guidance (ITG) for Anti/Terrorism Force Protection and Physical Security of Waterfront Facilities; and ITG–Facilities Homeporting Criteria for Nimitz-Class Aircraft Carriers for the third CVN homeporting. The third CVN berth is Berth LIMA. Berth LIMA has historically been used for both transient and homeported CVNs. No additional dredging will be required.

The homeporting facilities and infrastructure improvements necessary to meet the new guideline requirements include:

2.3.1 Fendering System

To support a homeported CVN, a fendering system is required to protect ships berthed at the dock. A fendering system is the series of concrete piles constructed in front of a quaywall, on which fenders are attached. A fender is a bumper, usually containing air or foam, which is used to keep ships and boats from striking the dock or other nearby vessels as a result of wave or tidal action. The fenders are used between CVNs and their docks.

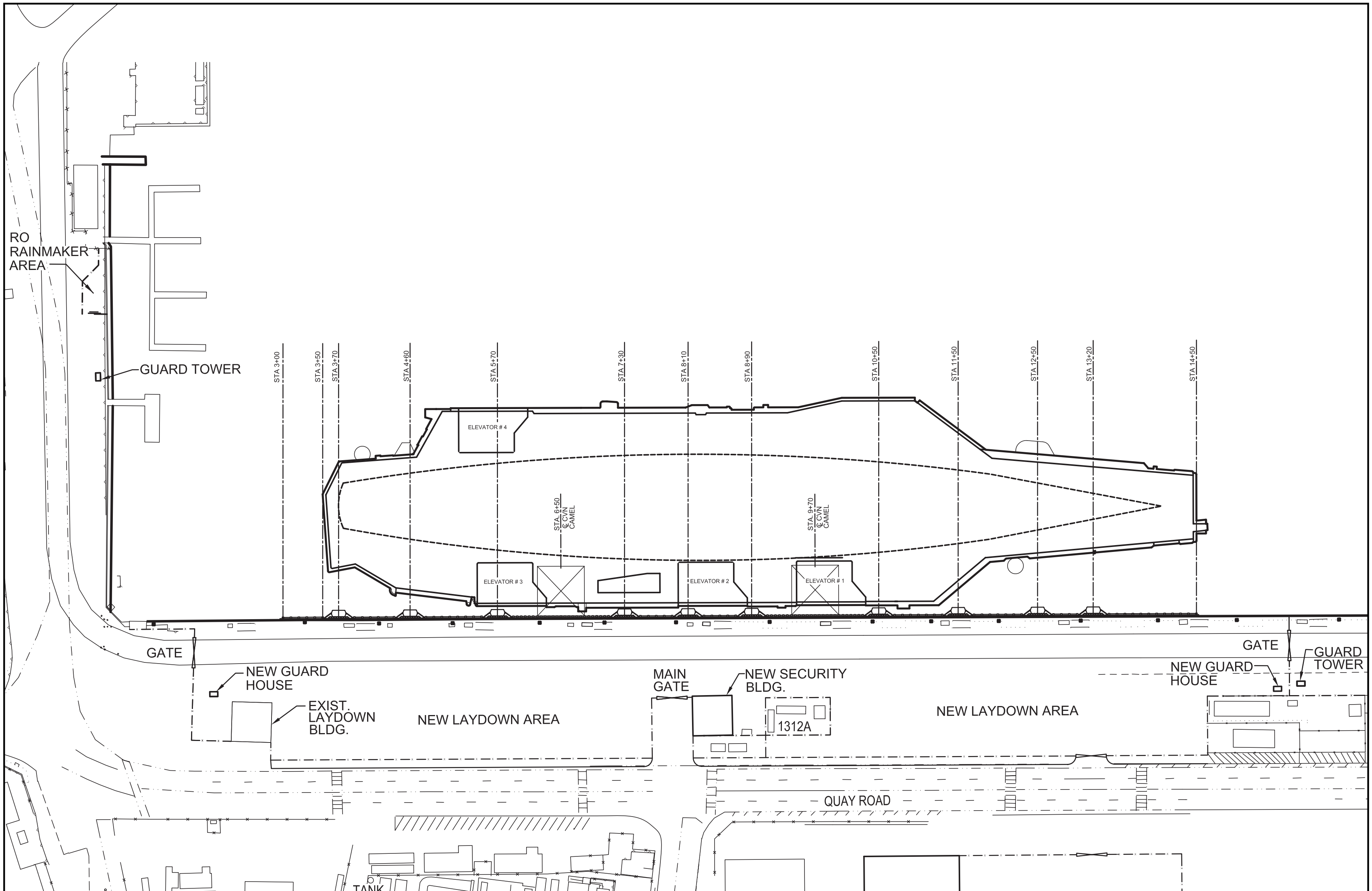
The current quaywall has concrete fender panels only above the water line. These panels have been damaged over the past 30 years of use and will be replaced with a concrete fender pile system (consisting of approximately 80 fender piles with armor stone between them) similar to the system currently in use on the adjacent berths JULIET and KILO (Figure 2-2). This fendering system is consistent with current CVN berthing standards. The pile spacing will be suitable for use with the new Miller Marine camels (a type of extra large fender used for large ships) and 8-foot diameter foam-filled fenders. Pile driving activities are expected to be completed within approximately 30 days, although efforts would be made to complete this activity in the shortest time possible.

2.3.2 Mooring Bollards

To meet current CVN berthing standards, some of the existing mooring bollards will be removed and new bollards will be installed. A mooring bollard is a short wooden, iron, or concrete post on a dock used to tie and secure ships when in port. Currently, there are 9 moorings bollards at Berth LIMA, spaced 150 feet apart along the quaywall. The proposed realignment will create a total of 12 mooring bollards at a spacing of 100 feet. In addition to the mooring bollards, 8 additional storm bollards may be installed 100 feet from the face of the quaywall to comply with current guidance.

2.3.3 CVN Security Building and Anti-Terrorism Force Protection Improvements

To meet current AT/FP standards and create a secure pier side area for Berth LIMA, a new 431-square foot security access building, 2 small guard shacks, and 2 security watch towers will be constructed. The security access building will have necessary electrical, mechanical, and telecommunications systems, as well as utility connections for water and sewer. In addition, new security fencing, a surveillance system, and lighting will be installed. The security access building will be constructed in the middle of Berth LIMA and the 2 guard shacks and towers will be built at either end of the berth.



0 Meters 90

0 Feet 320

Figure 2-1
Project Construction

Figure 2-2
Homeport Location

2.3.4 Information Systems

To support waterfront operations and a security access building, a communication duct bank and wiring will be installed. The current communication cable system at the quaywall will be replaced to provide the necessary cabling.

2.3.5 Electrical Utilities

The existing 480-volt system needs repair and the reliability of the existing 4,160-volt system is limited. The proposed infrastructure improvements will improve reliability and include repair and upgrade of the existing 480-volt industrial power systems, including: load interrupter switches; switch gear and control systems; replacement of the existing cable system and telephone mounds; relocation or modification of 4,160-volt electrical mounds; fire alarm system; cable television; utility control system; and installation of high-mast security lighting. These systems will be installed along the quaywall.

2.3.6 Mechanical Utilities

Several of the mechanical utilities along the quaywall are in need of repair, upgrade, or do not currently service Berth LIMA. The proposed improvements will include: repair of the existing steam and compressed air systems; relocation and extension of the potable water system; relocation and repair/upgrade of the waste water and oily waste system; capping of the existing jet fuel risers; and additional capacity for the Pure Water system, via the construction of a housing facility and utilities to accommodate a rented water purification trailer whenever the third carrier is in port. The housing facility will be constructed between KILO and LIMA pier near the small boat dock (Figure 2-2). The sewer systems have been upgraded and improved to meet current demands through previous projects and are currently able to handle the capacity of 3 CVNs. This action does not include any additional sewer upgrades or improvements.

2.3.7 Paving, Drainage and Site Improvements

To meet current DON standards, the drainage system will be expanded with new drains and drain lines. Proposed site improvements will include: demolition of existing pavement; repair of any platform voids; repair and construction of vehicle parking areas; and drainage infrastructure improvements. A below-surface sand filter will also be installed to remove metals and contaminants. After the sand filter, water will be routed to the existing storm drain system. In cases of excessive rainfall, a wet well and sump pump will be installed to allow capture and cleaning of the first quarter inch of rainfall. This method of storm water collection meets industry standards and is a commonly used design.

Much of the top concrete and asphalt surface of the quaywall will be removed and replaced to accommodate site improvements and utility upgrades. Sidewalks, curbs, and gutters will be installed to improve pedestrian safety. All of these improvements will be installed along the quaywall.

2.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, Navy would not modernize and upgrade Berth LIMA as described in Section 2.3 and the berth would remain in its present configuration and condition. During the brief, intermittent periods when 3 CVNs are in port simultaneously, 1 CVN would be berthed at Berth LIMA with substandard infrastructure conditions and degraded utilities. In addition, waterfront operations would be hampered by maintenance actions to correct aging infrastructure and utility systems, which would continue to deteriorate without repair or maintenance through normal utilization of the docking environment by both carriers and transient surface combatants. Sailors living and working aboard ship would experience interruptions to the living and working environment when utility service is interrupted for maintenance or interim repairs. Additionally, crew members' quality of life would be significantly and adversely impacted as current AT/FP requirements would have to be satisfied though utilization of additional manpower.

The No Action Alternative is not considered a reasonable alternative for satisfying the purpose and need of the Proposed Action as stated in Section 1.4. However, as required by NEPA, the No-Action Alternative is carried forward for analysis in this SEIS.

2.5 ALTERNATIVES

The purpose of this SEIS is to supplement the 1999 FEIS and 2000 ROD consistent with 40 CFR 1502.9. This document presents new environmental analysis relevant to actions already performed pursuant to the 1999 FEIS and 2000 ROD, as well as the 1995 FEIS and 1995 ROD. The Navy is not reconsidering the homeporting decisions made in those earlier RODs, as that would not serve any current purpose or need of the Navy. Therefore, the Navy proposes no change to the location of or significant modifications to the CVN homeport established at NASNI. The only proposed actions are minor infrastructure upgrades tailored to satisfy a very specific need: the need to bring an existing established CVN homeport berth (Berth LIMA) into compliance with specific published standards that did not exist at the time the 2000 ROD was implemented, and to correct normal infrastructure deterioration. Alternative methods of design or construction or alternatives related to on-base location would not meet this need, and are therefore eliminated from further supplemental analysis within this SEIS.

2.6 NEW CIRCUMSTANCES AND INFORMATION

The Navy identified the following 6 environmental resources as appropriate for detailed discussion in this SEIS. These are areas for which information or circumstances have significantly changed since the 1999 FEIS, or for which public comments have been expressed, such that Navy decision makers and the public interest would benefit from further detailed analysis. The Navy arrived at this list after carefully considering what it believes to be all of the relevant environmental facts and circumstances associated with implementation of the 2000 ROD, with particular attention to the topics covered by the 1999 FEIS and the scoping comments received during preparation of this SEIS. These 6 resources include: ground transportation and circulation (traffic), air quality, noise, biological resources, marine water quality, and coastal processes (erosion). Where a particular environmental resource is not discussed, the Navy determined there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts as discussed in the 1999 FEIS, and/or the issue was not raised during public scoping.

The following subparagraphs summarize new circumstances or information that have been identified as relevant changes since the publication of 1999 FEIS and 2000 ROD.

2.6.1 Traffic-Related Issues

2.6.1.1 General Traffic Conditions

Traffic conditions in the City of Coronado have changed since publication of the 2000 ROD. Important infrastructure changes include the removal of the toll booths on the Coronado Bridge (SR-75), which enables drivers to use City streets at an increased frequency. In addition, the Navy has finished construction (1995 ROD mitigation) of the NASNI Main Gate at Stockdale Boulevard (Third Street) which opened on July 9, 2007. Traffic from all users accessing Coronado Island via the Coronado Bridge has increased, from approximately 78,000 daily trips in 2000 to approximately 83,000 daily trips in 2006. This represents a 6 percent increase in daily trips since 2000.

The Navy has supported a new study of traffic impacts at NASNI. This traffic analysis is a main focus of this SEIS and is addressed in Chapter 3. The complete traffic impact study is also included in this SEIS as an appendix (Appendix C).

2.6.1.2 Number of Days that 3 CVNs are Simultaneously in Port

Since the 2000 ROD, both deployment cycles and maintenance cycles for CVNs have been adjusted. The maintenance plans are predicated on the current Fleet Response Plan (FRP). The FRP, adopted in 2003, features a change in readiness posture that institutionalizes an enhanced surge capability for the Navy. It calls for 6 of the Navy's 12 aircraft carriers to be available for deployment within 30 days, and another 2 to be available in 90 days. To meet this objective, the Navy has extended the interval between maintenance periods and modified training and manpower processes. The FRP cycle has evolved, as required by advances of technology and changes in operational demands, from a 24 month cycle to a 32 month cycle between major overhauls of a CVN. The FRP also incorporates a new maintenance philosophy referred to as a Continuous Incremental Availability (CIA). CIA proposes that a carrier undergo certain pierside maintenance evolutions for an uninterrupted 30 day period.

Since the issuance of the 2000 ROD, the maintenance schedule for homeported CVNs has been extended from 24 to 32 months to include the addition of a new 30-day period of in port maintenance. Analysis of known maintenance schedules and anticipated operational requirements indicates that the average number of days per year that 3 CVNs will be in port simultaneously has increased from 13 intermittent, nonconsecutive days (as determined in 1999 FEIS) to 29 intermittent, nonconsecutive days throughout an average year.

2.6.2 Minor Infrastructure Improvements

Since the 2000 ROD, the homeporting facilities and infrastructure improvements necessary to meet the guideline requirements have changed. These changes (described in Section 2.3) are required to achieve compliance with the following regulations and guidelines:

- Unified Facilities Criteria (UFC) 4-159-03 – Policy and Procedures for Design of Moorings for U.S. Department of Defense Vessels.
- Interim Technical Guidelines – Facility Homeporting Criteria for Nimitz-Class Carriers; and
- Interim Technical Guidelines for Antiterrorism Force Protection and Physical Security of Waterfront Facilities.

2.6.3 Scoping Comments about Shoreline Erosion

During the scoping process, public comments relating to shoreline erosion along First Street in the City of Coronado were raised. Commenters suggested that the erosion is caused by previous dredging, and by wave action associated with ongoing boat and ship traffic in San Diego Bay. In response to these public scoping comments, this SEIS analyzes shoreline erosion processes off-base along First Street and compares current environmental conditions to past and previously anticipated conditions.

2.7 SUMMARY OF FINDINGS

2.7.1 Traffic and Transportation

2.7.1.1 Traffic

Since the completion of the 1999 FEIS and 2000 ROD, new circumstances and information associated with baseline traffic conditions both on and off NASNI have emerged, and the expected frequency of 3 CVNs being in port simultaneously has been revised upward. In response to these changes, the Navy prepared a 2008 Traffic Study (Appendix C) to evaluate the implications of the changes and to establish new and updated baseline traffic conditions for key elements of the local transportation network. The study also evaluated the effectiveness of 2000 ROD traffic mitigations, with particular emphasis on the effects of staggered work times on peak hour traffic totals.

The SEIS traffic evaluation considers the same traffic scenario studied by the 1999 FEIS: traffic generated by 3 CVNs homeported at NASNI, with 3,217 personnel associated with each carrier. More recent data and policies associated with carrier activity indicate that a slightly higher daily trip rate (1.49 as compared to 1.47 in the 1999 FEIS) and higher peak hour trip rates (29 percent as compared to 18 percent in the 1999 FEIS) would occur. In addition, the 2000 ROD committed the DON to implement the staggering of work times when 3 carriers are simultaneously in port (an event that is now expected to occur on average 29 intermittent, non-consecutive days per year compared to 13 days in the 1999 FEIS).

When comparing the peak hour traffic associated with 2 additional CVNs (i.e., comparing the trip rate assumptions from the 1999 FEIS to the peak hour trips projected in the 2008 Traffic Study for 3 CVNs with the required staggering of work times), there would be roughly the same levels of traffic (23 fewer trips in the morning peak hour and 25 more trips in the afternoon peak hour). Based on these considerations, it is concluded that direct traffic impacts associated with 3 CVNs have not changed significantly since they were studied in the 1999 FEIS. Staggering of work schedules when 3 CVNs are in port at the same time has effectively reduced the extremes of the peak hour traffic and distributed the traffic over a broader peak period in both the morning and afternoon each day. In addition, the implementation of other 2000 ROD mitigation measures associated with encouragement of car- and vanpools and subsidization of public transportation alternatives has contributed to reductions in both peak hour and total traffic on the local and regional road network.

The Navy acknowledges that, as a whole, NASNI contributes significantly to average traffic volumes in the area. However, NASNI-related traffic exists within the context of failed traffic operating conditions within the local road network, conditions that are collectively also the result of continuing growth in population, development, and tourism within the City of Coronado. The traffic study also projected future (2015 and 2030) traffic conditions and evaluated the cumulative nature of traffic effects. The study found that a number of intersections will continue to offer deficient levels of service (LOS) in the future cumulative context, representing significant cumulative impacts. Several potential traffic improvements (summarized below in Section 2.8) are recommended that could help reduce traffic congestion on the most deficient portions of the road network.

2.7.1.2 Traffic-Related Air Quality and Noise Effects

The SEIS also addresses traffic-related effects on local air quality and the noise environment.

For air quality, regulatory agencies have issued new guidance and analysis procedures to address particulate matter (PM) associated with mobile source operations, which were neither available nor considered during preparation of the 1999 FEIS. The traffic-related air quality assessment in Section 3.2 of this SEIS evaluated the potential effects in light of these new requirements. More traditional air pollutant emissions and criteria were also evaluated. In all cases, appropriate worst-case assumptions were utilized to generate a conservative analysis. The assessment determined that traffic related to homeported CVNs would not result in significant environmental impacts.

With regard to traffic-related noise, using a worst-case analysis the noise assessment in Chapter 3.3 determined that the greatest difference in the predicted ranges of noise related to homeported CVN traffic would be between the current conditions with 1 CVN in port and the year 2030 traffic with 3 non-staggered CVNs in port. The potential increases in levels of noise for selected intersections were identified and found to be at most barely perceptible, with a range of 0.0 to 3.1 A-weighted decibel level (dBA) in increased noise. Therefore, the potential off-base traffic noise impacts would not be significant and no noise mitigation measures are warranted. The calculation worksheets are included in Appendix F.

2.7.2 Minor Infrastructure Improvements

With regard to the construction of minor infrastructure improvements at Berth LIMA (i.e., the Proposed Action in this SEIS), Chapter 4 evaluates potential effects on air quality, noise, biological resources, and marine water resources. An Applicability Analysis for the General Conformity Rule (Clean Air Act) consistent with requirements for federal projects was completed and estimates of air emissions from the proposed construction activities are below threshold *de minimus* levels for criteria pollutants that are not in attainment with National Ambient Air Quality Standards. Therefore, a formal air quality conformity analysis is not required. Noise impacts are anticipated to be minor and comparable to surrounding noise levels in an industrial setting such as NASNI. Construction activities, particularly the in-water placement of piles for the fendering system, would generate short term impacts, including re-suspended sediment and underwater noise, which would temporally affect biological resources including macro-benthos and finfish. Five individual green sea turtles have been tracked within San Diego Bay. These individuals were located 3 miles from the proposed improvements on Berth LIMA. One visual sighting of a green sea turtle within the project area has been confirmed. The Navy is using the interim findings from a joint Navy-Port of San Diego study, shared with National Oceanic and Atmospheric Administration (NOAA), to make the determination that the proposed project may affect, but is not likely to adversely affect green sea turtles (also refer to Section 4.3.1.7). The proposed project would have no effect on other federal threatened and endangered species. Marine mammals would not be affected. Marine water resources would also be temporally disturbed by turbidity created by re-suspended sediment from pile placement. Sediments from the bay floor that would be disturbed are anticipated to be mostly sand, and are not expected to contain contamination. Therefore, impacts to water resources from the construction activities would be minor and short term. No significant impacts are expected to occur with the implementation of the proposed infrastructure improvements at Berth LIMA.

2.7.3 Erosion Along First Street Shoreline

In response to comments made by area residents during the SEIS scoping process, Chapter 5 of this SEIS provides an assessment of the relative influence of San Diego Bay shoreline processes and CVN and other marine vessel movements on the erosion occurring along First Street in Coronado. The information provided in Chapter 5 is supplemented by a series of historical photos and illustrations provided in Appendix B. The analysis shows that the shoreline is a landform of continuous change. The erosional condition that currently exists along First Street is a result of natural conditions and historical alterations to the bay. A recent study of currents in San Diego Bay showed that dredging in the turning basin decreases the velocity of bay currents by negligible amounts along the northern portion of First Street (Appendix H: Technical Study of San Diego Bay Currents and Effects of Dredging, June 2008). The First Street area is not appreciably affected by dredging of the turning basin because currents in the bay are governed by the physical constraints of the entire bay (shape, size, and bathymetry), as well as oceanic inputs and outputs. Dredging in the turning basin does not promote the transport of sediments away from the shoreline along First Street. And while there is some debate about the effect of ship wakes on shoreline erosion, aircraft carrier and associated tug boat movements represent a negligible percentage of marine vessel traffic through the bay, such movements do not occur south of the turning basin, and they do not create substantial wakes. Therefore, the presence of homeported CVNs at NASNI does not appreciably affect erosion rates along First Street.

Table 2.7-1 provides a summary of environmental consequences for each of the 3 issue areas for which new information and circumstances since the 1999 FEIS have been identified, or where public scoping comments were extensive.

Table 2.7-1 Summary of SEIS Findings

Resource Area	Traffic and Transportation	Infrastructure Improvements	Erosion
Ground Transportaion/Circulation (Traffic)	No Significant Impacts	NA	NA
Air Quality	No Significant Impacts	No Significant Impacts	NA
Noise	No Significant Impacts	No Significant Impacts	NA
Biological Resources	NA	No Significant Impacts	NA
MarineWater Quality	NA	No Significant Impacts	NA
Coastal Processes (Erosion)	NA	NA	No Significant Impacts

Notes: NA = Indicates resources not analyzed under this new information or circumstance.

2.7.4 Cumulative Impacts

Cumulative impacts take into account the effects of the proposed project in combination with the effects of recent past, present and reasonably foreseeable future projects. Cumulative effects associated with the minor infrastructure projects would not be significant. However, traffic at NASNI and in its roadway network in the City of Coronado reflects the cumulative effects of commuters, residents and tourists. Within that context, the cumulative impacts investigated in this SEIS are significant.

The cumulative impact assessment in the 2008 Traffic Study (Appendix C) estimated the traffic conditions of the street network assumed to be in place by 2015 with 3 homeported CVNs in port and staggered working hours. Under cumulative conditions with 3 CVNs in port with staggered work hours, 16 intersections in the vicinity of NASNI are forecast to operate at deficient LOS (LOS E or F), 9 of which are unsignalized. Also, under cumulative conditions, 12 roadway segments are found to be deficient LOS (LOS D or worse) with 3 carriers in port. It should be noted that roadway segment analysis is calculated using average daily estimates and, therefore, staggering of work hours has no effect.

Potential traffic improvements at key intersections and their effects to reduce traffic congestion have been estimated and are presented below and in Chapter 6.

2.8 SUMMARY OF POTENTIAL TRAFFIC IMPROVEMENTS

Chapter 6 of this SEIS addresses the cumulative conditions and effects associated with future traffic conditions and other relevant resource areas. As identified above, the 2008 Traffic Study (Appendix C) found that the homeporting of 3 CVNs does not add any trips to the area roadway network that were not already evaluated when a third carrier was assessed in the 1999 FEIS. As such, the SEIS identifies potential traffic improvements only in the context of cumulative traffic conditions related to both NASNI traffic and other traffic growth in the community.

There are 3 categories of traffic improvements:

- Potential External Intersection Improvements (dependent upon non-DOD jurisdictions).
- Potential Internal Intersection Improvements (within NASNI jurisdiction and control).
- Additional Potential Measures.

2.8.1 Potential External Intersection Improvements

Table 2.8-1 lists potential traffic improvement measures based on whether right-of-way acquisition is required. The Table identifies the resulting effect on traffic conditions at key intersections along primary access routes serving NASNI as they relate to the potential traffic improvements. These improvements are described in more detail in Section 6.2.4.

An identifiable cumulative impact to which NASNI-related commuters contribute may be identified from Orange Avenue forward onto NASNI. During both A.M. and P.M. peak hours, there are 5 identifiable intersections where a cause and effect relationship may be studied and feasible traffic improvements designed. These include:

1. First Street and Alameda Boulevard
2. Fourth Street and Alameda Boulevard
3. First Street and Orange Avenue
4. Third Street and Orange Avenue
5. Fourth Street and Orange Avenue

These intersections were identified as appropriate candidates for potential traffic improvements because NASNI is the logical destination for commuters using these intersections during the A.M. peak period, with a similar reverse flow logic applied to commuters exiting NASNI in the P.M. peak period. As such, these intersections offer the most favorable application of possible traffic improvement strategies for directly addressing the impact of NASNI commuters on local roads.

Each of these potential improvements is under the jurisdiction of either the City of Coronado or CALTRANS and would require funding and implementation through the appropriate agencies. The local funding of identified potential traffic improvements may sometimes include federal grants or Defense Access Road (DAR) certification for DOD funding, which would be administered through the local transportation organizations. The DOD does not provide funding or management of road improvements outside its property, except as may be authorized by law under the DAR Program, or special legislation.

The DAR Program is the only authority the Navy has to address these recommended improvements. The Navy will submit requests for certification under the DAR Program to determine whether DOD can legally pay its fair share of the referenced potential traffic improvements. There is no guarantee that certification from this program will be obtained. The DAR program itself does not have funds for such improvements. As with other construction programs, the funding for such improvements (if found eligible) would come through the annual appropriations request process. In the event certification by the DAR Program is not obtained, the Navy may seek other funding sources from special legislation.

Table 2.8-1 Potential External Traffic Improvements

Intersection	Traffic Control	Peak Hour[1]	3 CVNs Staggered		3 CVNs Staggered After Improvements		Description (see also Section 6.2.4)
			Delay[2]	LOS[3]	Delay[2]	LOS[3]	
***Options with No Right-Of-Way Acquisition*[4]**							
First St & Alameda Blvd	AWS	AM	235.1	**F**	3.8	A	Implement inbound only configuration during A.M. peak hour (requires manual traffic control and cone layout during implementation) and manual traffic control during the P.M. peak hour **Figure 6.2-8.**
		PM	98.0	**F**	10.5	B	
Fourth St & Alameda Blvd	S	AM	6.5	A	6.6	A	Add an exclusive eastbound right-turn lane **Figure 6.2-9.**
		PM	83.5	**F**	42.7	D	
First St. & Orange Ave (2 Options)	S	AM	10.7	B	10.7	B	Remove parking along the south side of First St., west of Orange Ave. Re-stripe west leg along First St. to accommodate an eastbound through lane and a shared eastbound right-turn/bicycle lane. (optional diagonal parking along Orange Ave.) **Figure 6.2-3 and 6.2-4.**
		PM	138.6	**F**	8.4	A	
Fourth St & Orange Ave (Option 1)	S	AM	18.2	B	18.0	B	Remove some of the median on the north side of Orange Ave. to accommodate a triple southbound left-turn pocket **Figure 6.2-6**.
		PM	168.3	**F**	131.5	**F**	
***Options with Right-Of-Way Acquisition*[4]**							
Third St & Orange Ave	S	AM	124.5	**F**	46.0	D	Acquire right-of-way on the south side of the east leg along Third St. Re-stripe the east leg along Third St. to accommodate dual-westbound left-turn lanes. Trim down median on south side of Orange Ave. to allow for improved radius for westbound left traffic **Figure 6.2-5**.
		PM	43.4	D	26.7	C	
Fourth St & Orange Ave (Option 2)	S	AM	18.2	B	14.9	B	Acquire right-of-way on the south side of the east leg along Fourth St. Channelize the northbound right-turn lane along Orange Ave. Remove parking along Fourth St to accommodate the northbound right free movement **Figure 6.2-7**.
		PM	168.3	**F**	107.2	**F**	

Notes:
[1]Peak Hour refers to morning (6:15 to 7:15 A.M.) and afternoon (2:30 to 3:30 P.M.) periods each weekday during which the bulk of NASNI-related commute trips occur and traffic impacts are likely to be the greatest.
[2]Delay is measured in seconds per vehicle.
[3]LOS = Level of Service, a measure of traffic congestion at an intersection or road segment; rated on a scale of A to F.
[4] Right of Way Acquisition refers to public-owned land that is acquired for public means.
AWS = All Way Stop; S = Signal

2.8.2 Potential Internal Intersection Improvements on NASNI

The following improvements feature one or more components that would be implemented on NASNI property. They would complement and work in conjunction with the potential external traffic improvements described above. See Section 6.2.4 for a more detailed description of all recommended traffic improvements.

First Street & Alameda Boulevard

This improvement would implement an inbound only configuration on First Street during the A.M. peak-hour during the infrequent times when 3 homeported carriers are in port. This one-way configuration would minimize queuing at the First Street Gate by providing 4 lanes of inbound traffic during the morning peak period. During one-way operation, eastbound traffic along Quay Road would have access to Exchange Way. During the P.M. peak-hour, the intersection would return to its normal operation with inbound and outbound traffic, but would still require manual traffic control. Benefits of this improvement include:

- Improves intersection conditions from LOS F to LOS A in the A.M. peak hour and from LOS F to LOS B in the P.M. peak-hour.
- Reduces the formation of queues onto City of Coronado streets.
- Most of the improvements are on NASNI and can be accomplished using Navy resources.

Fourth Street & Alameda Boulevard

The traffic analysis performed for this intersection assumes that the City will install a traffic signal in 2008. As a temporary measure before this signal installation, the Navy has used its personnel to manage exiting NASNI traffic by controlling or “stacking” vehicles movements that essentially mimics the effects on traffic done by a traffic signal. The potential additional improvement would consist of adding an exclusive eastbound right-turn lane along McCain Boulevard for vehicles turning right onto Alameda Boulevard. This improvement would help separate exiting traffic from NASNI and improve the overall traffic flow through this intersection, especially during the P.M. peak-hour. Additional minor signal modifications will be needed. Benefits of this improvement would include:

- Improves intersection conditions from LOS F to LOS D in the P.M. peak-hour.
- Most of the improvements are on NASNI and can be easily accomplished using Navy resources.
- City of Coronado work only involves: potential retiming of traffic signal and installation of sensors and sequencing equipment.

2.8.3 Additional Potential Measures

Given the established effectiveness of staggered work times when 3 CVNs are in port simultaneously (see Chapter 3.1), the Navy could further reduce peak hour traffic volumes and improve intersection LOS by expanding the staggered work hour approach to the more frequent times when 2 CVNs are in port simultaneously. Similarly, voluntary early start times on days when only 1 CVN is in port would also help to expand the peak periods to avoid direct overlap with civilian peak hour traffic times in the community.

The Navy has also evaluated potential traffic calming measures for Third and Fourth Streets to slow traffic speeds and improve vehicle and pedestrian safety while maintaining roadway capacity. These potential improvements are under the jurisdiction of either the City of Coronado or CALTRANS and would require funding and implementation through the appropriate agencies.

CHAPTER 3
TRAFFIC AND TRANSPORTATION

Since the 1999 FEIS and 2000 ROD, the following new circumstances or information associated with traffic and transportation have emerged:

- *Baseline traffic conditions in Coronado have worsened.* Compared to what was previously projected, traffic has increased by 9,000 vehicles per day on Third Street between Orange Avenue and the Coronado Bridge, which suggests a general increase in traffic unrelated to NASNI. Removal of the bridge toll in 2002 appears to have increased off-peak travel. Traffic on Orange Avenue has also increased by 2,000 vehicles per day since 2001, further indicating that general traffic increases are not NASNI related.
- *Baseline traffic conditions on NASNI and carrier-related trip generation assumptions have been updated*. Baseline traffic conditions on NASNI roads have been updated based on July 2007 traffic counts of vehicles entering NASNI (the 1999 FEIS baseline for on-station traffic had been based on 1993 data). In addition, the expected number of peak-hour vehicle trips generated by CVNs has been revised upwards (compared to the 1999 FEIS assumption) to reflect new data and changes in Navy quality of life initiatives (see *Section 3.1.3.5 Trip Generation*).
- *Expected frequency of 3 CVNs being in port simultaneously has changed.* Historical records used in the 1999 FEIS suggested that when 3 CVNs were homeported, all 3 carriers would be in port simultaneously an average of only 13 intermittent, nonconsecutive days each year, or less than 4 percent of the year. More recently, the anticipated simultaneous occurrence of 3 CVNs in port (on average) has increased to 29 intermittent, nonconsecutive days each year (8 percent), based on updated operational and maintenance plans.

In addition, since the 2000 ROD, mitigation measures have been (and will continue to be) implemented in an effort to reduce potential traffic-related impacts. For example, the Navy has implemented staggered work shifts when 3 CVNs are in port simultaneously. With one CVN in port, typical work start and stop times are 7:00 A.M. and 3:00 P.M., respectively. When 3 carriers are in port, work start times are staggered by one hour (for purposes of this analysis start times were assumed to be 6:00 A.M., 7:00 A.M., and 8:00 A.M.). Work stop times are similarly staggered by one hour (assumed to be 2:00 P.M., 3:00 P.M., and 4:00 P.M. in this analysis). Other mitigation measures include encouraging carpools and vanpools, and subsidizing the use of public transportation by military personnel and civilian employees. The effectiveness of these measures has not previously been evaluated.

In response to these changes, the Navy prepared a 2008 Traffic Study (Appendix C) to achieve the following objectives:

1. Identify how local traffic conditions have changed over time and evaluate the Navy's contribution.
2. Establish new baseline (2007) conditions for key elements of the Coronado transportation network.
3. Characterize the contribution of homeported CVN crews to the 2007 baseline traffic conditions.
4. Assess the effectiveness of mitigation measures implemented per the 2000 ROD, including staggering of crew work shifts.

5. Project future (2015 and 2030) traffic conditions and assess cumulative effects.
6. Identify potential traffic improvements that could help reduce traffic congestion on the most deficient portions of the road network.

Section 3.1 below describes the key findings of the 2008 Traffic Study as they relate to the first 4 of these objectives. Results of the study pertaining to the last 2 objectives are described in Chapter 6, Cumulative Analysis. The entire 2008 Traffic Study is provided in Appendix C.

In addition to any direct implications that significant increases in traffic volume (as compared to conditions evaluated in the 1999 FEIS) may have for the LOS on local roads and intersections, there may be additional traffic-related effects on local air quality and the noise environment. Such effects are considered in this chapter as a supplemental analysis to the 1999 FEIS, regardless of the degree to which increased traffic volumes may or may not be attributable to CVN or other Navy activities at NASNI. Accordingly, Section 3.2 provides a supplemental evaluation of traffic-related air quality effects and Section 3.3 presents a similar evaluation of traffic-related noise.

3.1 2008 TRAFFIC STUDY

3.1.1 Overview of Traffic Study Terminology

The 2008 Traffic Study includes an in-depth analysis of historic traffic trends, current baseline traffic conditions, and projected future traffic conditions. The study discusses traffic trends and current conditions on key road segments and intersections serving the Coronado community and NASNI, as well as traffic at the primary access gates serving NASNI. This section introduces the standard terminology used to describe road networks and the metrics used to evaluate network utilization and levels of traffic congestion.

Roadway classifications used in the 2008 Traffic Study and in this SEIS include principal arterials, minor arterials, and collector streets. Principal arterials carry large volumes and, in Coronado, are also state highways. A principal arterial is defined as a 4-lane divided roadway, with a typical right-of-way width of 80 feet and a curb to curb pavement width between 48 feet (one-way road) and 64 feet (2-way road). Principal arterials are designed to accommodate more than 15,000 daily trips on average, with speed limits of 25 to 55 miles per hour (mph).

Minor arterials connect state highways to collectors. A minor arterial is defined as a 2-lane undivided roadway, with a typical right-of-way width of 80 feet and a curb to curb pavement width of around 48 feet. Minor arterials are designed to accommodate from 7,500 to 15,000 daily trips on average, with speed limits of 25 to 30 mph.

Collector streets support and connect the arterial street system. Collector streets permit local traffic access to or from the arterial street system. A collector street is defined as a 2-lane undivided roadway, with a typical right-of-way width of 80 feet and a curb to curb pavement width of around 48 feet. Collector streets are designed to accommodate from 2,500 to 7,500 daily trips on average, with speed limits of 25 to 30 mph.

Roadway capacity and the amount of traffic congestion that occurs on roadways is typically measured and evaluated in terms of average daily traffic (ADT) or annual average daily traffic (AADT). ADT is the average number of vehicles that use a roadway segment within a 24-hour period. The AADT is the average number of vehicles that use a roadway segment within a 24-hour period over an entire year. The AADT presents a broader view of roadway use and eliminates seasonal fluctuations in traffic volumes.

Operating conditions on roadways and intersections under various traffic volume loads are described in terms of LOS. The LOS is a qualitative measure of the effect of a number of factors, including roadway geometries, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing free flowing operating conditions and LOS F representing heavy congestion and delay.

Intersection LOS is based on morning (A.M.) and afternoon (P.M.) peak hour data and calculated delay (in seconds) per vehicle. Peak hours are those hours of the day during which the bulk of commute trips occur and traffic impacts are likely to be the greatest. For NASNI traffic, the A.M. peak hour generally occurs between 6:15 A.M. and 7:15 A.M., and the P.M. peak hour generally occurs between 2:30 P.M. and 3:30 P.M. For community-based traffic on the Coronado road network, the A.M. peak hour generally occurs between 7:30 A.M. and 8:30 A.M. and the P.M. peak hour generally occurs between 4:30 P.M. and 5:30 P.M.

The LOS for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay. The LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. At an all-way stop-controlled intersection, the delay reported is the average control delay of the intersection. At a one-way or two-way stop-controlled intersection, the delay reported represents the worst movement, which is typically the left-turns from the minor street approach. In addition to reporting the worst delay for the minor street approach at an unsignalized intersection, all delays for each approach, as well as the overall delay of the intersection, were evaluated in the traffic study to more completely describe the operations at each unsignalized intersection.

Along roadway segments, LOS is based on the ADT volume on a roadway and the volume-to-capacity (V/C) ratio. ADT is the average number of vehicles that use a roadway segment within a 24-hour period. V/C ratios represent the ratio of the actual traffic volume to the design capacity of the roadway and are used to provide an evaluation of the level of service along a roadway segment.

The City of Coronado has developed acceptable LOS threshold standards to determine impacts to intersections and roadway segments. As indicated in the *City of Coronado General Plan Circulation Element* (October 1995), all signalized and unsignalized intersections are expected to operate at LOS D or better (Table 3.1-1). The City's goal for roadway segments is LOS C or better (Table 3.1-2). Average vehicle delay for the study intersections was determined utilizing the methodology and thresholds provided in Chapter 16 of the *2000 Highway Capacity Manual* and as shown in Table 3.1-1. Average vehicle delay (in seconds) for each intersection was qualified with a corresponding intersection LOS. These standards for acceptable intersection and roadway segment operation were applied in all traffic-related analyses presented in this SEIS (including the projected cumulative 2015 conditions presented in Chapter 6).

Table 3.1-1 Intersection LOS & Delay Ranges

LOS	Delay (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Highway Capacity Manual 2000

Table 3.1-2 City of Coronado Level of Service Thresholds for Roadway Segments

Classification (# Lanes)	Level of Service[1]					
	A	B	C	D	E	F
Principal Arterial (6)	25,000	35,000	50,000	55,000	60,000	>60,000
Principal Arterial (4)	15,000	21,000	30,000	35,000	40,000	>40,000
Principal Arterial (1-way) (3)	12,500	17,500	25,000	27,500	30,000	>30,000
Minor Arterial (4)	10,000	14,000	20,000	25,000	30,000	>30,000
Minor Arterial (2)	5,000	7,000	10,000	13,000	15,000	>15,000
Collector (2)	2,500	3,500	5,000	6,500	8,000	>8,000

Source: City of Coronado General Plan Circulation Element
(1) Roadway level of service thresholds are based on 2-way traffic volumes during a 24-hour period.

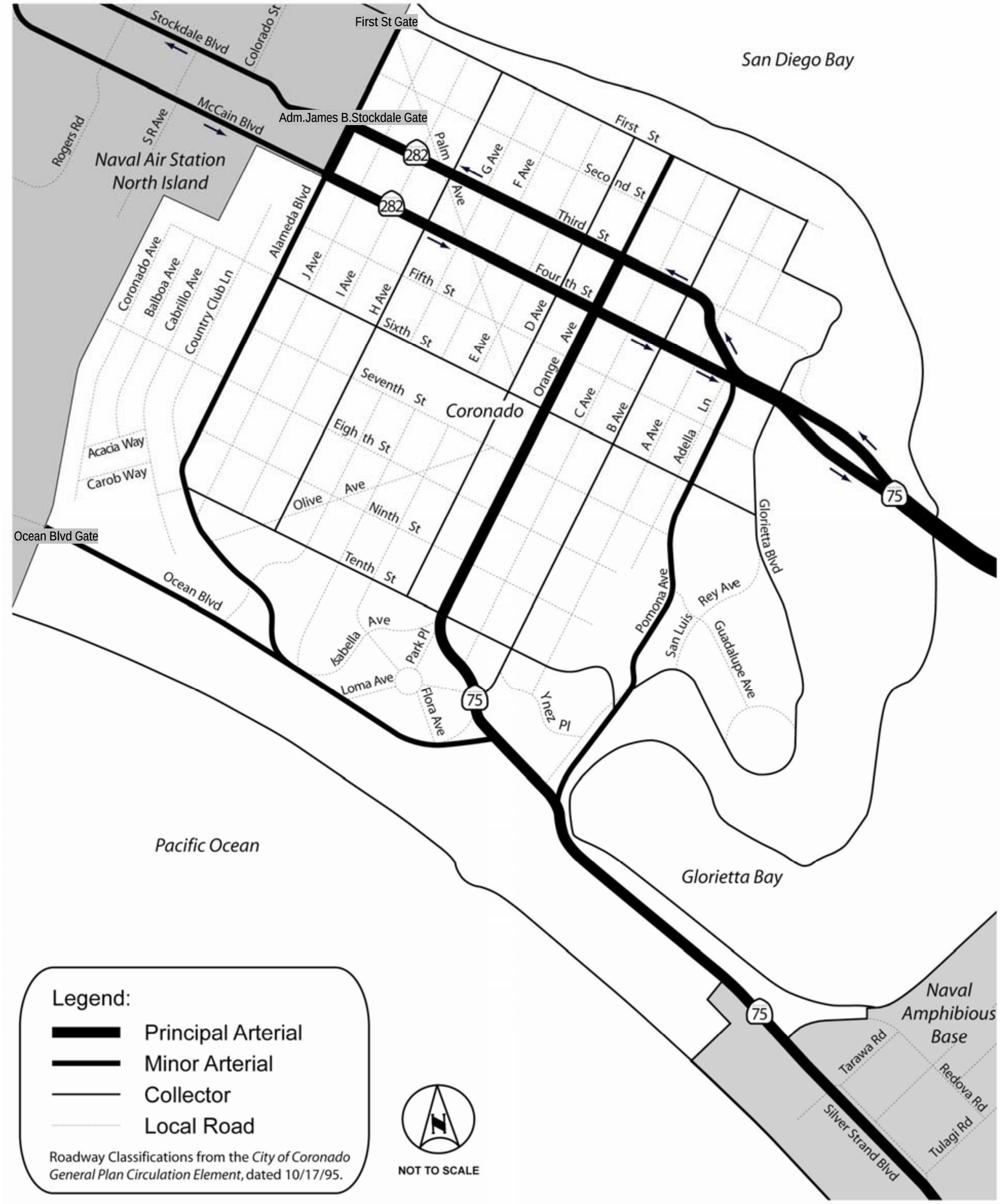
3.1.2 Description of the Relevant Transportation Network

3.1.2.1 Roadway Segments and Classifications

The following is a brief description of the current roadway system in the project study area. Figure 3.1-1 illustrates the transportation network and City of Coronado Roadway Classifications.

First Street runs east-west and is classified as a 2-lane Collector between Alameda Boulevard and A Avenue. Sidewalks, curbs, parallel parking, and bike lanes are provided on both sides of the street. A NASNI gate is located at the west end of First Street and provides a route between NASNI and the San Diego-Coronado Bridge. Eastbound right-turns are prohibited between 2:00 P.M. and 6:00 P.M. from J Avenue to D Avenue. The posted speed limit is 25 mph.

Figure 3.1-1 City of Coronado Roadway Classifications



Third Street is classified as a westbound, 1-way, 3-lane Principal Arterial between Pomona Avenue and Alameda Boulevard. Third Street is also known as State Route 75 (SR-75) between Pomona Avenue and Orange Avenue and State Route 282 (SR-282) between Orange Avenue and Alameda Boulevard. Sidewalks and curbs are located on both sides of the street for the entire length of the street. Parking is located on both sides of the street west of Orange Avenue. No parking is allowed east of Orange Avenue. An entrance-only NASNI gate is located at the west end of Third Street. This street serves as the main route from the San Diego-Coronado Bridge to NASNI. Right-turns are prohibited between 5:00 A.M. and 8:00 A.M. between D Avenue and J Avenue. The posted speed limit is 25 mph.

Pomona Avenue is classified as a north-south, 2-lane Minor Arterial between Fourth Street and Silver Strand Boulevard and a westbound, 1-way, 3-lane Principal Arterial between Fourth Street and Third Street. Sidewalks, curbs, and parallel-parking spaces are located on both sides of the street between Third Street and Glorietta Boulevard. Sidewalks, curbs, and parallel-parking spaces are located on the east side of the street and a separate bike path is located about 25 feet west of the street between Glorietta Boulevard and Silver Strand Boulevard. Speed bumps are located intermittently between Fourth Street and Silver Strand Boulevard. The posted speed limit is 25 mph.

Fourth Street is classified as an eastbound, 1-way, 3-lane Principal Arterial between Alameda Boulevard and Pomona Avenue. Sidewalks, curbs, and parallel-parking spaces are located on both sides of the street, for the entire length of the street. Fourth Street is also known as SR-282 between Alameda Boulevard and Orange Avenue and SR-75 between Orange Avenue and Pomona Avenue. An exit-only NASNI gate is located at the west end of the street. This street serves as the main route from NASNI to the San Diego-Coronado Bridge. The posted speed limit is 25 mph.

San Diego-Coronado Bridge (also designated as SR-75) is classified as a 5-lane Freeway. The traffic lanes on the bridge are separated by a movable median barrier, which allows for 3 westbound traffic lanes in the morning and 3 eastbound traffic lanes in the afternoon and evening. The approach on each side of the bridge contains 3 lanes. An out-of-service toll plaza sits on the west side of the bridge and serves as a traffic-calming device for vehicles entering the island. The posted speed limit is 50 mph.

Sixth Street is classified as an east-west, 2-lane Collector between Alameda Boulevard and Glorietta Boulevard. Sixth Street, west of Orange Avenue, is bordered by Coronado High School, Coronado Middle School, and Village Elementary School. The street has sidewalks, curbs, and parallel parking on both sides of the street, for the entire length of the street. The posted speed limit is 25 mph.

Tenth Street is classified as an east-west, 2-lane Collector between Alameda Boulevard and Pomona Avenue. The street has sidewalks, curbs, and parallel-parking on both sides of the street, for the entire length of the street. The posted speed limit is 25 mph.

Ocean Boulevard is classified as an east-west, 2-lane Minor Arterial between NASNI and Orange Avenue. The street has sidewalks, curbs, and parallel parking on both sides of the street, for the entire length of the street. The street has a double-yellow centerline between NASNI and Isabella Avenue. The posted speed limit is 25 mph.

Alameda Boulevard is classified as a north-south, 2-lane Minor Arterial between First Street and Ocean Boulevard. The street runs along the border of NASNI between First Street and Fourth Street. It has sidewalks, curbs, and parallel parking on both sides of the street, for the entire length of the street. There is a segment of the street with a double-yellow centerline between Ninth Street and J Avenue. The posted speed limit is 25 mph.

Orange Avenue (also designated as SR-75) is classified as a north-south, 4-lane Minor Arterial between First Street and Third Street and a 4-lane Principal Arterial between Third Street and Pomona Avenue. The road has a wide raised landscaped median for the entire length of the road. It also has sidewalks, curbs, and parallel-parking spaces on both sides of the street for the entire length of the street. The posted speed limit is 30 mph between First Street and Ninth Street and 25 mph between Ninth Street and Pomona Avenue.

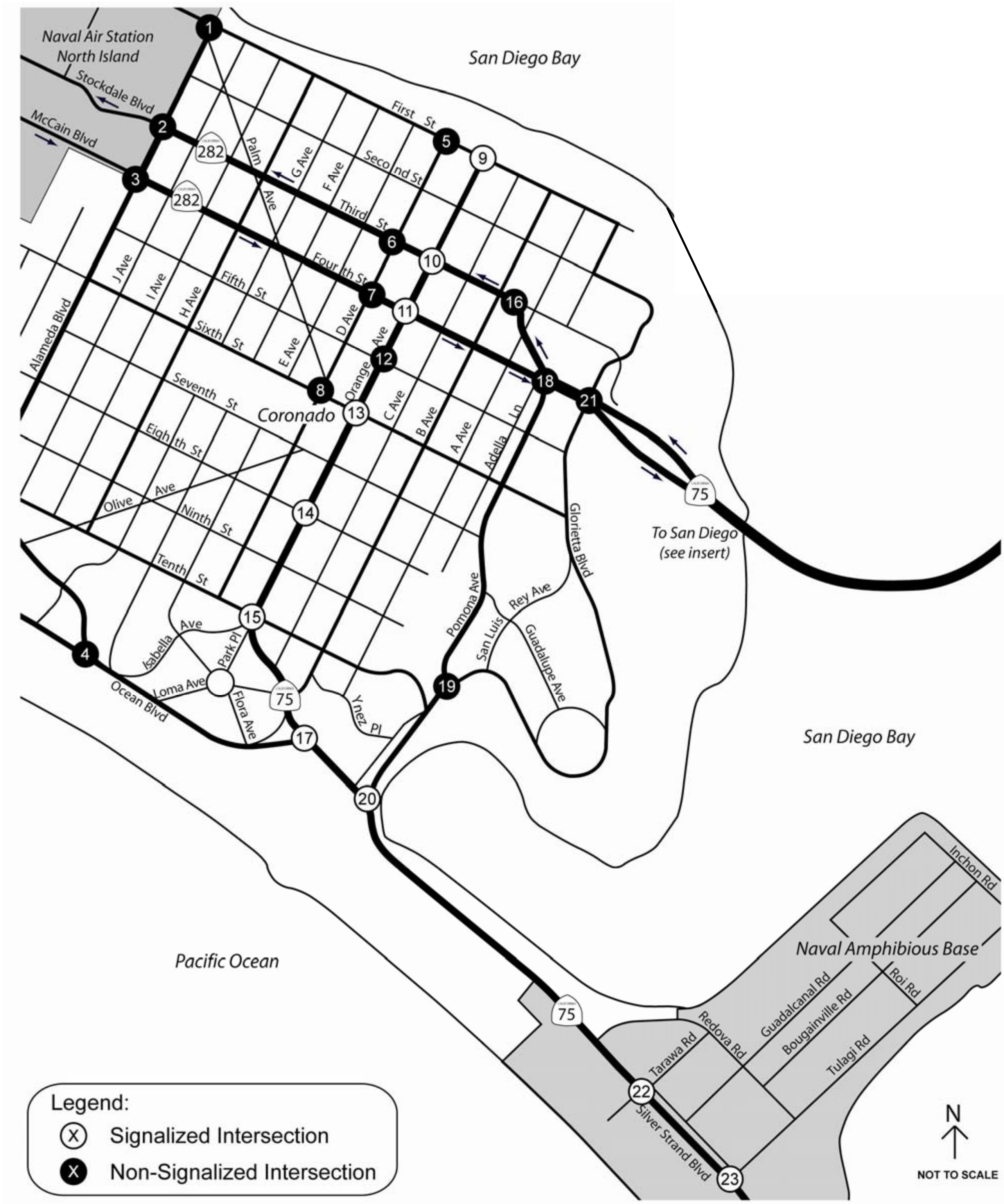
Silver Strand Boulevard (also designated as SR-75) is classified as an east-west, 4-lane Principal Arterial between Pomona Avenue and the city limits of Imperial Beach. The road has a landscaped median with an intermittent barrier along the center of the median. There is a separate, 2-lane, bike path to the north of the road that travels the length of the road. There is also a curb on both sides of the road, along the entire length of the road. The posted speed limit is 45 mph.

3.1.2.2 Study Intersections

The intersections included in the traffic analysis are shown in Figure 3.1-2. Peak hour counts were collected between 6:00 A.M. to 8:00 A.M. and 2:30 A.M. to 4:30 P.M. at the following intersections:

1. Alameda Blvd. / First St.
2. Alameda Blvd. / Third St.
3. Alameda Blvd. / Fourth St.
4. Alameda Blvd. / Ocean Blvd.
5. D Ave. / First St.
6. D Ave. / Third St.
7. D Ave. / Fourth St.
8. D Ave / Sixth St.
9. Orange Ave. / First St.
10. Orange Ave. / Third St.
11. Orange Ave. / Fourth St.
12. Orange Ave. / Fifth St.
13. Orange Ave. / Sixth St.
14. Orange Ave. / Eighth St.
15. Orange Ave. / Tenth St.
16. Pomona Ave. / Third St.
17. Orange Ave. / R.H. Dana Pl.
18. Pomona Ave. / Fourth St.
19. Pomona Ave. / Glorietta Blvd.
20. Pomona Ave. / Silver Strand Blvd.
21. Glorietta Blvd. / Fourth St.
22. Silver Strand Blvd. / Tarawa Rd.
23. Silver Strand Blvd. / Tulagi Rd.
24. Logan Ave. / Cesar E. Chavez Pkwy *(City of San Diego)*
25. SR-75 Off-Ramp / National Ave. *(City of San Diego)*

Figure 3.1-2 Study Intersections



3.1.3 Changes in Traffic-Related Circumstances and Information Since the 1999 FEIS

3.1.3.1 Community Traffic Conditions in Coronado

Since the 1999 FEIS was completed, traffic volumes have increased in the local community outside NASNI. Traffic volumes increased steadily on the San Diego-Coronado Bridge from 1992 to 2006, reflecting an increase of approximately 14 percent over the 14 years, an average growth of 1 percent per year. Toll charges at the Coronado gateway were discontinued in 2002, resulting in a large increase in AADT volumes from 76,000 in 2001 to 83,000 in 2002. The 1999 FEIS assumed that discontinuance of the tolls would increase traffic by approximately 18 percent. However, when the toll service was discontinued the bridge experienced an immediate traffic increase of approximately 6 percent. Therefore, the traffic analysis in the 1999 FEIS accounted for a larger increase in traffic than actual making its assessment and conclusions more valid than if an underestimation was done. Since the initial surge in traffic following the toll removal, traffic volumes have remained relatively constant.

Since the 1999 FEIS, daily traffic within Coronado has increased but has been fairly stable since 2004, particularly on the main corridors through the area. Figure 3.1-3 illustrates the AADT volumes along Third and Fourth Street from 1992 to 2006. To determine the AADT for the traffic study, daily counts were averaged for 4 locations along the segment. As shown in the figure, traffic volumes along Third Street and Fourth Street generally indicated the same trend with a large decrease in traffic in 1995 and increasing traffic after 2000. Since 2000, traffic has increased but growth has remained relatively flat since 2002. Traffic volumes on Third Street were generally higher than Fourth Street except in recent years where traffic volumes indicated a decline.

Figure 3.1-3 Daily Traffic Volumes – Third and Fourth Street

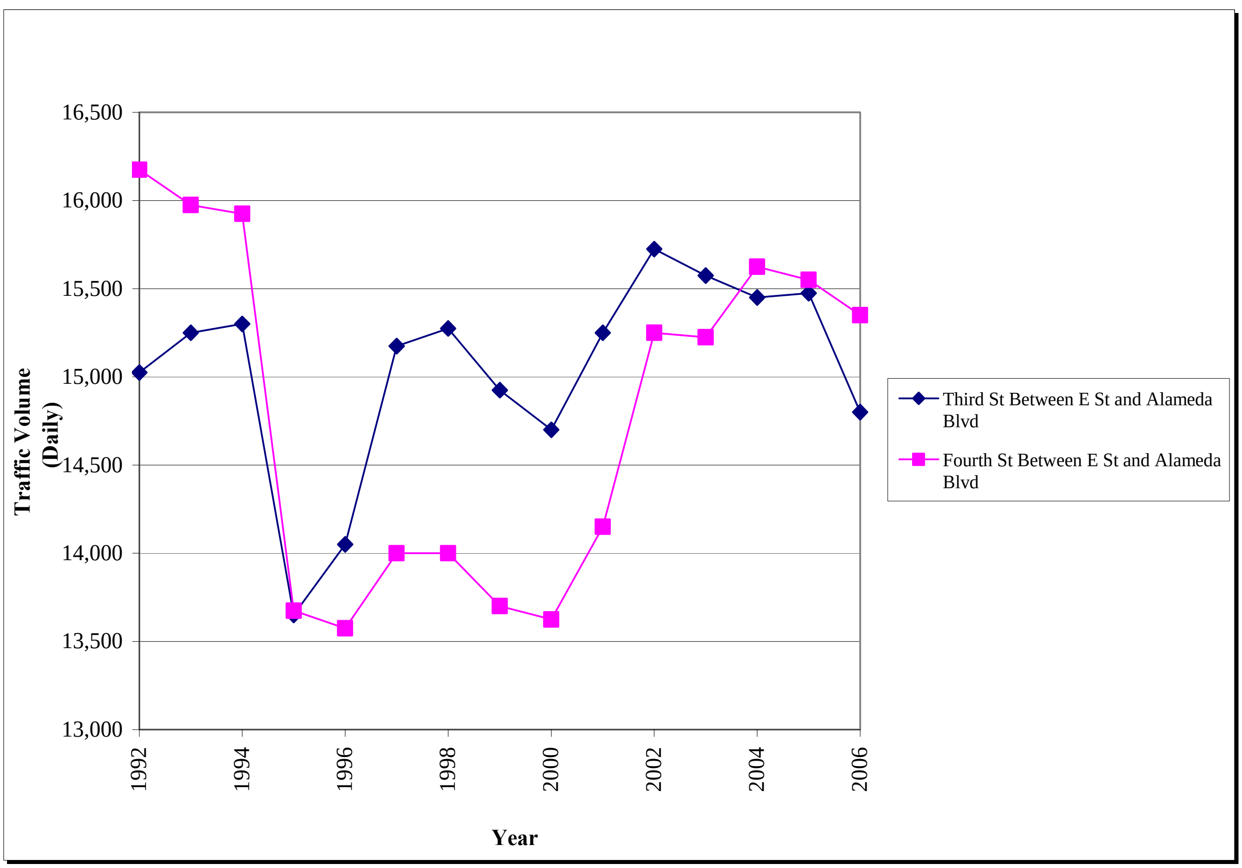
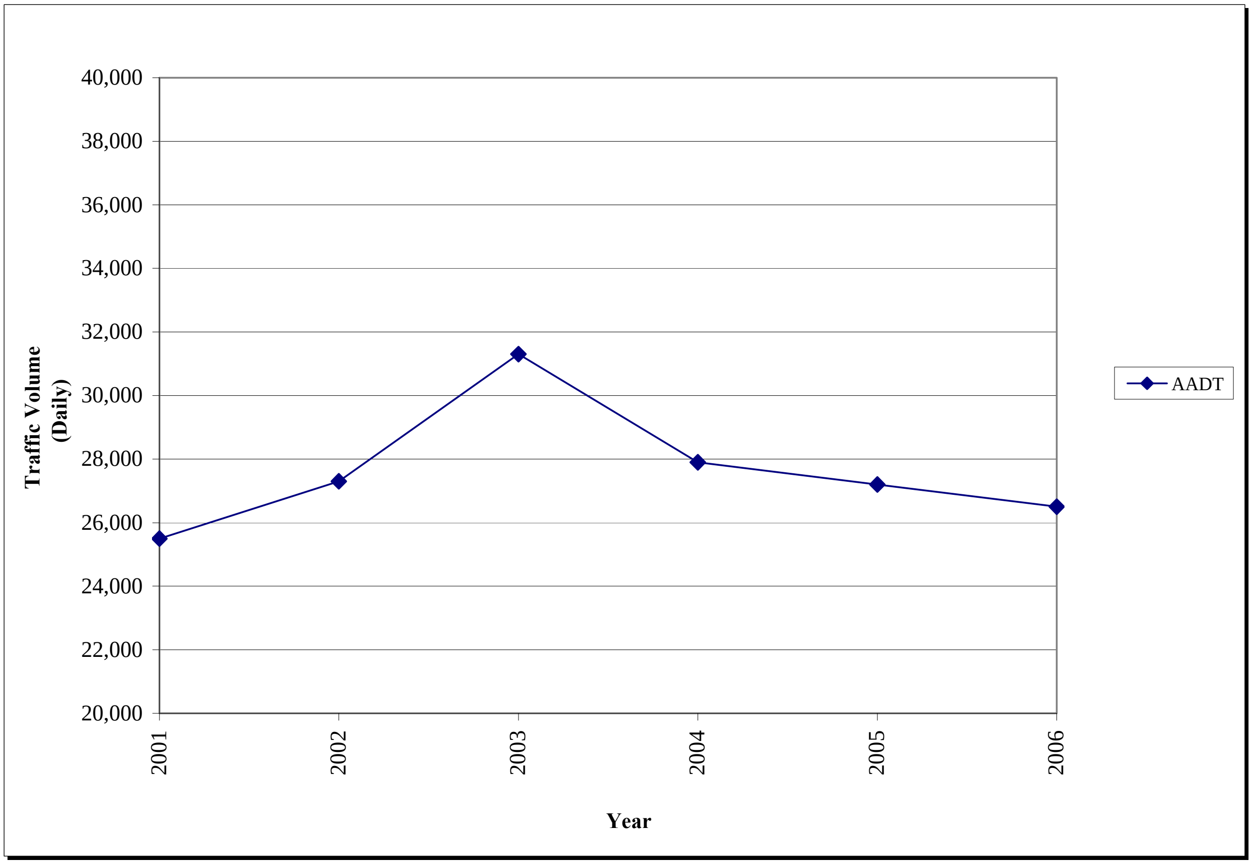


Figure 3.1-4 illustrates the AADT volumes along Orange Avenue. To determine the AADT, traffic data were averaged for 6 locations along Orange Avenue. As shown, traffic peaked in 2003 with over 31,000 daily vehicles, with traffic volumes decreasing to less than 28,000 daily vehicles in 2005. Daily roadway traffic volumes along Orange Avenue have decreased since 2003.

Figure 3.1-4 Annual Average Daily Traffic Volumes – Orange Avenue



3.1.3.2 Traffic Conditions on NASNI

As presumed in the 1999 FEIS, the NASNI gates at Alameda Boulevard / Third Street and Alameda Boulevard / Fourth Street were realigned in 2007. Traffic counts taken in 2007 for the 2008 Traffic Study indicate that the traffic volume on Alameda Boulevard between Third and Fourth Streets has declined over 75 percent since the gate realignment, from 20,000 ADT (as documented in the 1999 FEIS) to 4,542 ADT (as documented in the 2008 Traffic Study). The previous main access to NASNI was provided via Fourth Street, which turns into McCain Boulevard on the installation. The majority of the inbound traffic originates from Third Street. Inbound traffic from Third Street required a left-turn at Alameda Boulevard and a right-turn at Fourth Street to enter NASNI. For outbound traffic, the majority of the traffic continued onto Fourth Street from NASNI. The segment of Alameda Boulevard between Third Street and Fourth Street was configured for southbound one-way traffic. The Navy has finished the construction of the NASNI Base Main Gate at Stockdale Boulevard (Third Street) and McCain Boulevard (Fourth Street) and it was opened to the public on July 9, 2007. The gate serves the majority of traffic to and from NASNI, with Stockdale Boulevard processing inbound traffic and McCain Boulevard discharging outbound traffic.

With the completion of the Main Gate, Alameda Boulevard from Third Street to Fourth Street has been converted to 2-way traffic. Both the intersection of Third Street and Alameda Boulevard and the intersection of Fourth Street and Alameda Boulevard are now operating as a 2-way stop-controlled (TWSC) intersection, with traffic along Alameda Boulevard required to stop. As a temporary solution, NASNI is currently providing traffic control personnel at the Third Street/Alameda Boulevard intersection from approximately 5:00 A.M. to 7:00 A.M. and at the Fourth Street/Alameda Boulevard intersection from 2:00 P.M. to 5:00 P.M., in order to minimize traffic congestion at the intersections. Traffic signals are already planned for these 2 intersections and are anticipated to be installed by the end of 2008. On NASNI, McCain Boulevard and Stockdale Boulevard have been reconfigured to function similarly to a one-way segment from the gate to Quentin Roosevelt Boulevard. Although both McCain Boulevard and Stockdale Boulevard allow 2-way traffic west of North R Avenue, the primary travel routes are McCain Boulevard for eastbound traffic and Stockdale Boulevard for westbound traffic.

Table 3.1-3 summarizes the historical trend for NASNI-related traffic based on vehicle counts entering the installation at the NASNI gates during surveys taken between 1983 and 2005, prior to the reconfiguration of the Main gates. The entering counts have been doubled in the last line of the table to provide an approximation of total NASNI-related traffic at the time of each traffic count. As shown in the table, there are considerable variations in traffic entering NASNI in each respective year. For the traffic data between 1983 and 2005, the Main Gate at Fourth Street represented approximately half of the inbound traffic to NASNI. The First Street Gate accommodated approximately 25 percent of the inbound traffic and the Second Street and Ocean Boulevard Gates served the remaining 25 percent of the inbound traffic. It should be noted that the data collected in 2002 included times that had 1, 2, and 3 carriers in port simultaneously. The estimated total traffic numbers extrapolated from the entering counts shows an increase of 4,793 total daily trips for each additional CVN in port.

Table 3.1-4 summarizes the entering traffic counted at the NASNI gates in July 2007 following the reconfiguration of the gates. As shown in the table, traffic counts now indicate approximately 75 percent of the traffic entering NASNI at the Main Gate at Third Street. The First Street and Ocean Boulevard Gates resulted in the remaining 25 percent of the inbound traffic, with the First Street Gate receiving a slightly higher amount of traffic. The traffic entering NASNI was approximately 20,000 ADT, which is generally consistent with the data collected in May 2002 with one carrier in port. In addition, traffic counts were obtained in July 2007 by both tube counts (automatic traffic counters laid across the road) and personnel at the gates. The data indicated that the tube counts were approximately 2 percent higher. This difference is negligible and would indicate that the tube counts were accurate in the collection of data at the gates. Once again the entering counts have been doubled in Table 3.1-4 to extrapolate the count data to an approximation of total NASNI traffic. The trend in estimated total NASNI-related traffic (extrapolated from the entering counts in Tables 3.1-3 and 3.1-4) is illustrated in the graph in Figure 3.1-5.

Table 3.1-3 Historical Count Data for NASNI-Related Traffic

GATE	ADT Entering NASNI											Average Distribution (d)
	1983	Jul 1988	Feb 1989	Jan 1990	Jul 1993	Aug 1995	Feb 1999	May 2002 (a)	May 2002 (b)	Aug 2002 (c)	Nov 2005	
First St (Gate 2)	4,600	6,553	7,432	5,220	3,480	5,100	3,481	3,961	5,332	7,133	7,143	23%
Second St (Gate 3)	2,250	6,777	6,396	2,845	2,499	2,000	4,924	--	--	--	--	17%
Fourth St (Main Gate)	15,800	11,787	14,315	9,134	7,485	10,347	13,482	15,170	16,149	15,208	14,049	52%
Ocean Blvd (Gate 5)	3,150	2,385	2,846	465	2,494	1,675	681	--	--	1,507	--	8%
Total Entering	**25,800**	**27,502**	**30,989**	**17,664**	**15,958**	**19,122**	**22,568**	**19,131**	**21,481**	**23,848**	**21,192**	**100%**
Est.Total Traffic (e)	51,600	55,004	61,978	35,328	31,916	38,244	45,136	38,262	42,962	47,696	42,384	--

Notes:

(a) Counts were performed with 1 carrier in port for mid-week days.

(b) Counts were performed with 2 carriers in port for mid-week days.

(c) Counts were performed with 3 carriers in port for mid-week days.

(d) All 2002 counts and the November 2005 counts were not included in the average distribution because data were not collected at that location at that time.

(e) These are estimates of total traffic entering and exiting NASNI, derived by doubling the counts of entering traffic.

1983 counts taken from the *Traffic Engineering-Planning Study*, dated May, 1983.

1988 through 1993 counts taken from the *Final EIS for the Development of Facilities in San Diego/Coronado to Support the Homeporting of 1 Nimitz-Class Aircraft Carrier*, dated November 1995. Counts were provided by the NASNI Security Department in 1994.

1995 and 1999 counts taken from NASNI information compiled in June 2000 and provided to Kimley-Horn and Associates in July 2007.

2002 counts taken from NASNI studies associated with an EIS Record ROD, which indicated that traffic would be monitored with 1, 2, and 3 carriers in port.

2005 counts taken from the Third Street Gate Signal Warrant Study. Counts were collected in November 2005.

Table 3.1-4 2007 Count Data for Entering Traffic at NASNI

GATE	ADT Entering NASNI		AVERAGE DISTRIBUTION
	July 2007 Tube Counts[1]	July 2007 Manual Counts[2]	
First St (Gate 2)	3,350	2,967	16%
Third St	14,234	14,264	73%
Ocean Blvd (Gate 5)	2,424	2,319	11%
Total Entering Traffic	**20,008**	**19,550**	**100%**
Est. Total Traffic[3]	40,016	39,100	--

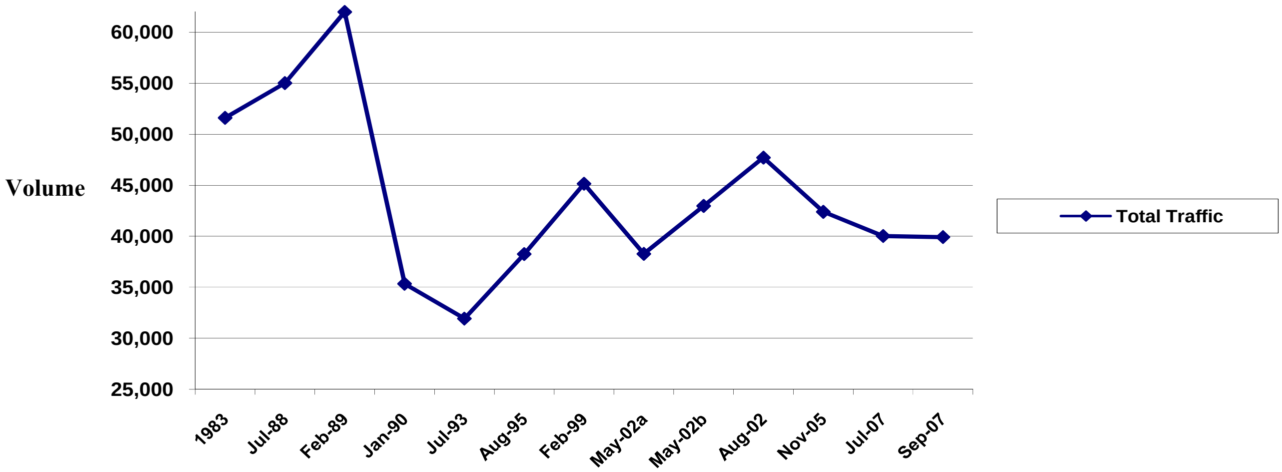
Notes:

[1] July 2007 tube counts were taken between July 22, 2007 and July 28, 2007 by National Data & Surveying Services, with 1 CVN in port.

[2] July 2007 manual counts were taken between July 16, 2007 and July 30, 2007 by NASNI security personnel working at the gates, with 1 CVN in port.

[3] These are estimates of total traffic entering and exiting NASNI, derived by doubling the counts of entering traffic.

Figure 3.1-5 Trend in Estimated Total Traffic at NASNI (1983 – 2007)



In addition, hourly traffic volume data collected on principal local arterial streets in Coronado such as Third Street, Fourth Street, and Orange Avenue revealed that there is an extended morning and evening peak period on the local transportation network, representing a combination of the peak hours for NASNI traffic and the peak hours for community traffic within Coronado. The morning peak period typically occurs between 5:00 A.M. and 8:00 A.M., with the NASNI peak hour occurring from 6:15 A.M. to 7:15 A.M. and the community peak hour occurring from 7:30 A.M. to 8:30 A.M. The evening peak period typically occurs between noon and 6:00 P.M. with the NASNI peak hour occurring from 2:30 P.M. to 3:30 P.M. and the community peak hour occurring from 4:30 P.M. to 5:30 P.M. The extended peak periods are a reflection of the sequential nature of the separate traffic peaks associated with NASNI and community traffic.

3.1.3.3 Change in Expected Frequency of 3 CVNs in Port Simultaneously

Historical records used in the 1999 FEIS revealed that when 3 carriers were homeported, all 3 ships were only in port simultaneously for 13 intermittent, non-consecutive days (or 4 percent of the year). Therefore, the 1999 FEIS concluded that analyzing conditions for 3 CVNs in port was not required as the amount of time 3 carriers would be in port was not significant. Since the 1999 study was completed, the number of days that 3 CVNs are anticipated to be in port simultaneously has increased slightly. Based on updated operation and maintenance plans, recent Navy statistics suggest that the 3 homeported CVNs will be in port at the same time for an average of 29 intermittent, non-consecutive days (8 percent of the year).

3.1.4 Approach to Analysis

3.1.4.1 Collection of Daily Traffic Counts

The 2008 Traffic Study derived updated baseline traffic conditions based upon traffic counts collected in July and September 2007, and an understanding of current lane configurations at intersections and on roadway segments of the impacted traffic network. The July traffic counts were collected to represent the month with the highest traffic demand on Coronado based on historical traffic data. The September traffic counts were collected to represent traffic while schools are in session and to serve as a comparison to the summer traffic. The collected traffic data demonstrated that ADT volumes are higher in the summer than in the fall, resulting in higher levels of congestion at intersections and on roadway segments during the summer. As such, the analysis results for summer conditions are reported in this SEIS to reflect worst-case conditions. The traffic count data is provided in Appendix C.

3.1.4.2 Trip Generation

A single homeported carrier was present during both the summer and fall 2007 traffic counts. The second homeported carrier was on deployment and did not return until after the traffic counts were completed. Traffic counts collected when 1 carrier was in port were adjusted using trip generation calculations to forecast traffic volumes when 3 carriers are in port simultaneously. The trip generation rates were developed based on rates observed at NASNI in 2002 when 1, 2, and 3 carriers were homeported on the base, as documented in the September 4, 2002 Memorandum for the Record (Appendix I). Trip generation rates were developed to estimate the average daily trips generated by CVN crew members as well as the A.M. and P.M. peak hour trips. The peak hour trip generation rate reflects the percentage of the daily carrier-generated traffic that occurs in the highest morning and afternoon peak hours associated with NASNI-based traffic.

A vehicle trip consists of 1-way travel from a beginning to an end point. Daily trip generation is calculated by multiplying the trip generation rate by the total number of personnel on each carrier and includes both inbound and outbound trips of crew members, contractors, support personnel and deliveries. Peak hour trip generation for a carrier is based on the likely arrival and departure of workers assigned to the CVN.

The daily trip generation for a CVN published in the *1999 FEIS* was 1.47 trips per person. Subsequent to the *1999 FEIS*, additional traffic data were collected in May and August 2002 at NASNI during periods with 1, 2, and 3 carriers in port. These data include all base traffic (cars and trucks) and are documented in the September 4, 2002 Memorandum for the Record (Appendix I). The traffic volumes associated with various numbers of carriers in port were as follows:

- Total base traffic with 1 carrier – 37,548 ADT
- Total base traffic with 2 carriers – 42,692 ADT
- Total base traffic with 3 carriers – 47,158 ADT

The difference in total daily trips between 1 and 3 carriers in port (37,548 ADT and 47,158 ADT) results in an increase of 9,610 ADT for the 2 carriers. This value was divided by 2 carriers and then divided by 3,217 personnel assigned to each carrier (which includes all crew, contractors, and other support personnel associated with a carrier.) This resulted in a trip generation rate of 1.49 trips per person associated with a carrier (rounded to two decimal places). As a conservative estimate (when compared to the rate of 1.47 trips per person used in the 1999 FEIS*)*, the trip rate of 1.49 trips per person was used for the estimation of traffic generated for each CVN in port at NASNI. Multiplying 3,217 personnel for each CVN by a trip rate of 1.49 yields 4,793 daily vehicle trips.

Peak hour traffic for a CVN was estimated on the likely arrival and departure of crew assigned to a CVN. The data and assumptions used to generate CVN traffic are summarized in Tables 3.1-5 and 3.1-6. As shown, each CVN is estimated to generate a total of 4,793 daily vehicle trips, including 1,392 (1,265 in, 127 out) A.M. peak-hour trips and 1,392 (127 in, 1,256 out) P.M. peak-hour trips.

Table 3.1-5 Trip Generation Assumptions for CVN Carrier

Consideration	Factor	Number
100% manning level for a carrier [1]		3,217
Current manning levels [2]	0.90	2,895
Less E1 -E3 staff living on-ship/on-base [3]	-833	2,062
Duty section (less 20%) [4]	0.80	1,650
Personnel assigned off-ship TAD, training, leave (less 10%)	0.90	1,485
Personnel using transit (2%) [5]	0.02	30
Total commute trips using auto		1,455
Average persons per vehicle (commute trip) [6]	1.15	1,265
Trips in non-peak direction [7]	0.10	127
Total peak hour trips [8]		**1,392**
Daily trips [9]	1.49	**4,793**
Percent of daily trips associated with a carrier in each peak hour [10]		29.0%

Notes:

[1] Indicates complement of crew in fully manned condition.

[2] Manning levels according to the Activity Manning Document (AMD) are approximately 2,800. A 10% reduction was applied to the full manning level to reflect the typical level of unfilled billets. (3,217 x .90 = 2,895).

[3] The AMD states that 1,041 Sailors are E3 and below. The AMD and statistical analysis indicates that 80% of the E3 and below are unmarried without dependents, resulting in 833 Sailors (1,041 x 0.80 = 833). These Sailors will be billeted on the ship or in on-base housing. (2,895 – 833 = 2,062).

[4] Five duty sections are assumed, with 20% of the crew in each duty section. Personnel on duty section are required to stay on ship to provide routine maintenance and security for the carrier; consequently, they do not commute in the peak hour. (2,062 x 0.80 = 1,650).

[5] Transit mode split including bus and ferry riders. Rate is based on service provided to base and overall base modal split. (1,485 x 0.02 = 30, which subtracted from 1,485 equals 1,455 as shown on next line of table).

[6] Persons per vehicle reflect carpooling and vanpooling activity. Rate reflects past performance at NASNI. (1,455/1.15 = 1,265).

[7] Trips in non-peak direction refers to outbound trips in the morning peak hour and inbound trips in the afternoon peak hour. (1,265 x 0.10 = 127)

[8] Total peak hour trips refers to both inbound and outbound trips in the highest morning peak hour and the highest afternoon peak hour. (1,265 + 127 = 1,392).

[9] Daily trips are based on the trip generation rate calculated for NASNI when 1, 2 and 3 carriers were present at the air station, based on the September 4, 2002 Memorandum for the Record (Appendix I). The trip generation rate is a measure of the number of daily trips likely to be taken by each person. Daily trips are computed by multiplying the rate times the 100% manning level of the carrier: 3,217 x 1.49 = 4,793.

[10] Reflects the percentage of the total daily traffic associated with a carrier that occurs in the highest morning peak hour and the highest afternoon peak hour (1,392/4,793 = 0.29 or 29%). Other trips relate to personal off-duty trips, deliveries, maintenance, visitors, and recreational trips.

Table 3.1-6 Trip Generation Rates and Estimated Project Generated Trips

Trip Generation Rates								
Land Use	Units (Personnel)	Daily Rate	AM Peak Hour			PM Peak Hour		
			Total	Inbound	Outbound	Total	Inbound	Outbound
Homeported CVN	3,217	1.49	29%	90%	10%	29%	10%	90%
Estimated Project Generated Trips								
	Daily Trips							
Homeported CVN	4,793		1,392[(1)]	1,253	139	1,392[(1)]	139	1,253

(1)The 1999 FEIS traffic analysis assumed an estimate of 850 carrier-generated trips during the peak hour. In developing the current trip generation estimate, specific assessment of Navy regulations regarding new Quality of Life Initiatives for Sailors was evaluated to establish an updated reference. This updated reference is 1,392 peak hour trips.

3.1.4.3 Project Trip Distribution and Trip Assignment

The CVN-related traffic (estimated using the trip generation factors described above) was distributed and assigned to the roadway system based on the 2030 SANDAG Series 11 forecast. The majority (77 percent) of project traffic was distributed to and from the San Diego-Coronado Bridge, 5 percent traveling to and from Silver Strand Boulevard, and the remaining 18 percent traveling internally within Coronado city limits. Trip assignment was distributed at the NASNI gates, including 5 percent to and from the Ocean Boulevard Gate, 70 percent to the Third and Fourth Street Gates, and 25 percent to and from the First Street Gate.

3.1.4.4 Analysis of 2007 Baseline Conditions

The 2008 Traffic Study analyzed the 2007 baseline traffic conditions in the study area using updated daily roadway segment and peak hour intersection traffic count data, field observations, current roadway capacities, intersection lane configurations, and the threshold standards for acceptable intersection and roadway operation established by the City of Coronado. Peak hour intersection and daily roadway segment volumes were analyzed for Baseline (July 2007), Cumulative (2015), and Horizon Year (2030) traffic conditions with 3 CVNs in port. The cumulative (2015) analysis is presented in Chapter 6 Cumulative Impacts. Horizon Year 2030 projected traffic conditions are included in the complete 2008 Traffic Study contained in Appendix C.

Roadway segment analysis was based on the comparison of ADT volumes to the City's roadway classification, capacity, and LOS standards (described in Sections 3.1.1 and 3.1.2 above). Study intersections were analyzed based on peak hour volumes and average vehicle delay, which was calculated with the assistance of *Synchro 6.0* computer software. *Synchro 6.0* utilizes the methodologies outlined in the 2000 *Highway Capacity Manual* and is accepted by the City of Coronado and CALTRANS.

As discussed previously, baseline traffic counts were collected in July 2007 when 1 CVN was in port. Therefore, traffic related to homeporting 2 additional CVNs, based on the estimated trip generation and distribution, was added to the daily roadway segment and peak hour intersection volumes to represent baseline project conditions.

2007 Baseline Intersection Analysis

Baseline intersection delay and LOS for 3 homeported carriers with staggering is summarized in Table 3.1-7 and shown in Figure 3.1-6. Under baseline conditions, 14 intersections operate at deficient LOS (LOS E or F). As shown, of the 14 intersections with deficient LOS, 4 intersections are signalized and 10 intersections are unsignalized. The majority of intersections found to be deficient are located along principal arterial roads, including First Street, Third Street, and Fourth Street. This is where current traffic flows are the most concentrated during the peak periods.

Because the movement with the highest delay at an unsignalized intersection is reported (regardless of how many vehicles are in that respective movement), the delay reported may not represent the overall operations of an intersection. Therefore, the traffic analysis included an evaluation of the delay per approach for each one-way stop-controlled or 2-way stop-controlled intersection under baseline 2007 conditions to determine the actual delay and traffic volumes per turning movement. The evaluation determined the volume for the stop-controlled movement on the minor approach of an unsignalized intersection was less than 200 vehicles. At a few locations, such as less than 5 vehicles caused an intersection to report a large delay resulting in an unacceptable LOS.

2007 Baseline Roadway Segment Analysis

Daily roadway segment counts were collected for the 2008 Traffic Study. Daily roadway segment V/C ratios represent the ratio of the actual traffic volume to the design capacity of the roadway. It is used to provide an estimate of the level of service of the road segment. V/C comparisons provide a planning-level assessment of roadway segments that, when deficient, may be approaching their practical traffic carrying capacity but should not be interpreted to suggest that the roadways in fact need to be widened.

It should be noted that staggered work hours do not affect roadway segment analysis and only affect the traffic volumes during the peak periods, because the incremental daily traffic volumes generated from 3 CVNs in port would be the same over a 24-hour time period with or without staggered work hours.

Baseline roadway segment daily LOS with 3 homeported CVNs are summarized in Table 3.1-8. As shown in the table, all roadway segments would function at LOS C or better with 3 carriers in port, except at 11 locations. The following list shows the roadway segments that would function at LOS D, E, or F with 3 CVNs in port.

- First Street between Alameda Boulevard and H Avenue
- First Street between H Avenue and Orange Avenue
- Third Street between Orange Avenue and Pomona Avenue
- Fourth Street between Orange Avenue and Pomona Avenue
- Ocean Boulevard between Alameda Boulevard and Orange Avenue
- Orange Avenue between Fourth Street and Sixth Street
- Orange Avenue between Sixth Street and Tenth Street
- Orange Avenue between R.H. Dana Place and Pomona Avenue
- Silver Strand Boulevard between Pomona Avenue and Tarawa Road
- Silver Strand Boulevard between Tulagi Road and Leyte Road
- Pomona Avenue between Glorietta Boulevard and Silver Strand Boulevard

It should be noted that field investigations conducted for the 2008 Traffic Study determined that several of the unsignalized intersections along First Street, Third Street, and Fourth Street that were analyzed to operate at LOS E or F were actually operating at a better LOS with significantly less delay to traffic on the stop controlled side street(s). Circumstances along the major streets at these intersections were found to create adequate gaps to serve traffic at the stop controlled approaches.

Table 3.1-7 2007 Baseline Conditions Peak Hour Intersection LOS Summary

Intersection	Traffic Control	Peak Hour	3 CVNs with Staggering	
			Delay[1]	LOS
Alameda Blvd. / First St.	AWS	AM PM	105.1 41.5	**F** **E**
Alameda Blvd. / Third St.	TWS	AM PM	18.9 ECL	B **F**
Alameda Blvd. / Fourth St.	AWS	AM PM	9.7 34.2	A C
Alameda Blvd. / Ocean Blvd.	OWS	AM PM	28.5 124.8	D **F**
D Ave. / First St.	TWS	AM PM	16.1 73.2	C **F**
D Ave. / Third St.	TWS	AM PM	ECL 44.8	**F** **E**
D Ave. / Fourth St.	TWS	AM PM	32.6 ECL	D **F**
D Ave. / Sixth St.	AWS	AM PM	8.0 10.1	A B
Orange Ave. / First St.	S	AM PM	7.7 39.3	A D
Orange Ave. / Third St.	S	AM PM	33.1 31.1	C C
Orange Ave. / Fourth St.	S	AM PM	15.3 85.3	B **F**
Orange Ave. / Fifth St.	TWS	AM PM	58.1 123.9	**F** **F**
Orange Ave. / Sixth St.	S	AM PM	10.1 14.4	B B
Orange Ave. / Eighth St.	S	AM PM	11.7 18.9	B B
Orange Ave. / Tenth St.	S	AM PM	16.0 20.9	B C
Pomona Ave. / Third St.	OWS	AM PM	51.2 22.5	**F** C
Orange Ave. / R.H. Dana Pl.	S	AM PM	119.1 36.7	**F** D
Pomona Ave. / Fourth St.	OWS	AM PM	20.4 ECL	C **F**
Pomona Ave. / Glorietta Blvd.	TWS	AM PM	10.5 16.2	B C
Pomona Ave. / Silver Strand Blvd.	S	AM PM	31.0 32.7	C C
Glorietta Blvd. / Fourth St.	OWS	AM PM	67.8 23.4	**F** C
Silver Strand Blvd. / Tarawa Rd	S	AM PM	ECL 82.5	**F** **F**
Silver Strand Blvd. / Tulagi Rd	S	AM PM	4.2 10.7	A B
Cesar E Chavez Pkwy / Logan Ave.	S	AM PM	17.2 117.1	B **F**
National Ave. / SR-75 Off-Ramp	OWS	AM PM	10.0 11.2	A B

Notes: [1] Delay is measured in seconds per vehicle.
AWS = All-Way Stop TWS = Two-Way Stop OWS = One-Way Stop S = Signalized
ECL = Exceeds Calculable Limit, reported when delay exceeds 180 seconds.

Figure 3.1-6 2007 Baseline Conditions Intersection LOS

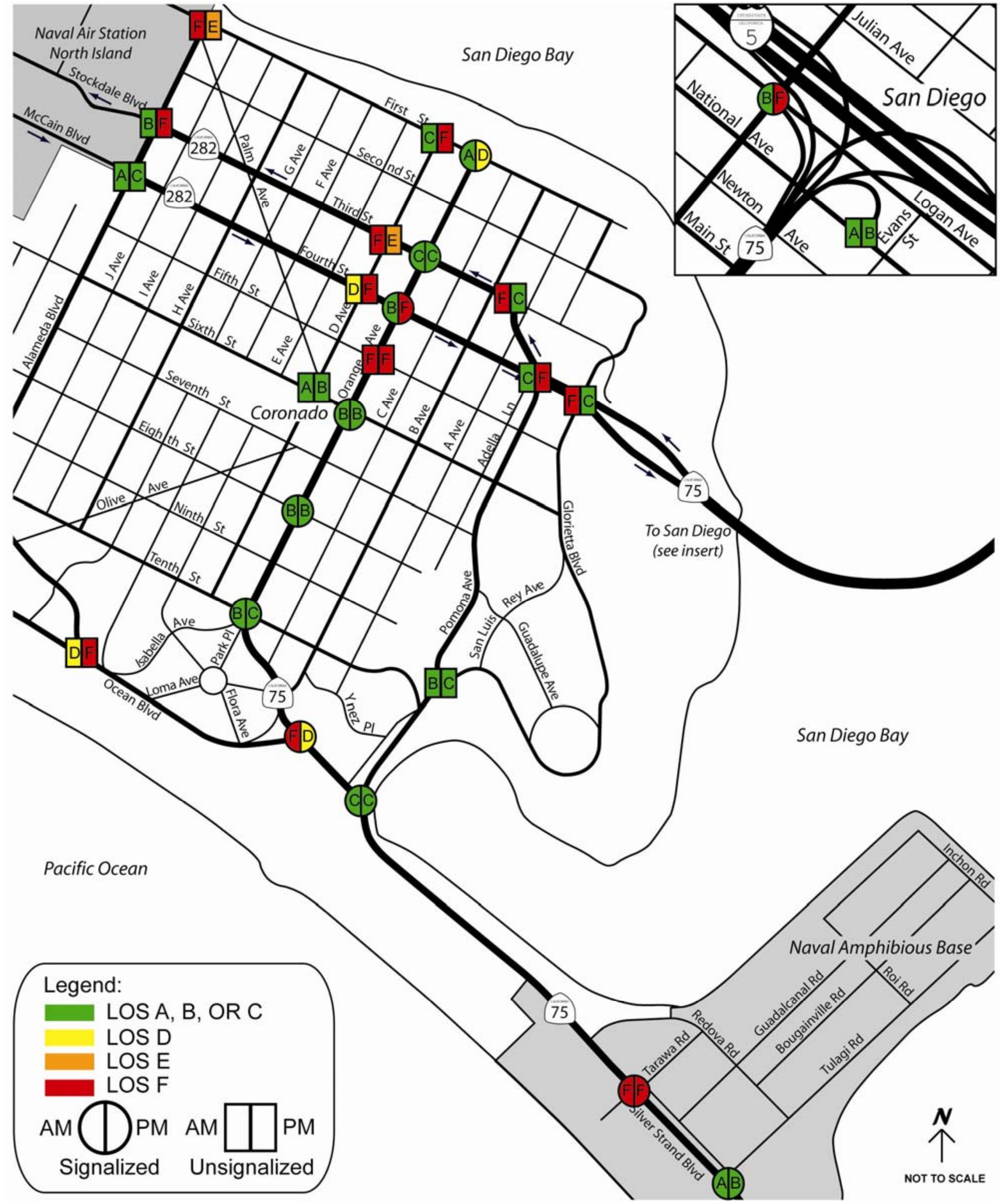


Table 3.1-8 2007 Baseline Conditions Roadway Segment Daily LOS Summary

Location		Daily Capacity	3 CVNs[1]		
			ADT	V/C[2]	LOS
First St.	Alameda Blvd. To H Ave.	8,000	7,271	0.909	**E**
	H Ave. to Orange Ave.	8,000	8,619	1.077	**F**
Third St.	Alameda Blvd. to H Ave.	30,000	18,885	0.630	C
	H Ave. to Orange Ave.	30,000	19,865	0.662	C
	Orange Ave. to Pomona Ave.	30,000	39,506	1.317	**F**
Fourth St.	Alameda Blvd. to H Ave.	30,000	17,224	0.574	B
	H Ave. to Orange Ave.	30,000	18,433	0.614	C
	Orange Ave. to Pomona Ave.	30,000	32,519	1.084	**F**
Sixth St.	H Ave. to Orange Ave.	8,000	2,131	0.266	A
Ocean Blvd.	Marina Ave. to Alameda Blvd	15,000	8,081	0.539	C
	Alameda Blvd. to Orange Ave.	15,000	10,469	0.698	**D**
Alameda Blvd.	First St. to Third St.	15,000	4,608	0.307	A
	Third St. to Fourth St.	15,000	5,308	0.354	B
	Fourth ST. to Sixth St.	15,000	8,388	0.559	C
	Sixth St. to Tenth St.	15,000	5,678	0.379	B
	Tenth St. to Ocean Blvd.	15,000	5,390	0.359	B
Orange Ave.	First St. to Third St.	30,000	12,193	0.406	B
	Third St. to Fourth St.	40,000	24,154	0.604	C
	Fourth St. to Sixth St.	40,000	32,113	0.803	**D**
	Sixth St. to Tenth St.	40,000	33,022	0.826	**D**
	Tenth St. to R.H. Dana Pl.	40,000	28,297	0.707	C
	R.H. Dana Pl. to Pomona Ave.	40,000	35,100	0.878	**E**
Silver Strand Blvd (SR-75)	Pomona Ave. to Tarawa Rd	40,000	39,053	0.976	**E**
	Tarawa Rd. to Tulagi Rd.	40,000	25,566	0.639	C
	Tulagi Rd. to Leyte Rd.	40,000	30,327	0.758	**D**
Pomona Ave.	Fourth St. to Glorietta Blvd	15,000	6,155	0.410	B
	Glorietta Blvd. to Silver Strand Blvd.	15,000	12,786	0.852	**D**

Notes: (1) 3 CVNs without staggering; roadway segment analysis is based on 24 hour ADT and would not show the effects of staggering.
(2) V/C denotes volume-to-capacity ratio.

In addition, the roadway segment analysis uses theoretical capacities for various classifications of roadways that assume traditional distribution of traffic over the day and traditional directional distributions of traffic during the peak hours. The traditional characteristics include a sharp 1-hour peak in the morning and afternoon and a strong directional imbalance of traffic during the peak hours. Coronado traffic patterns are unique in that the peak traffic periods are spread over several hours during the morning and afternoon. This is in part due to the DON’s staggering of work hours and the presence of tourism traffic that occurs during the middle part of the day. This pattern of traffic results in a higher utilization of the available roadway capacity and effectively increases the practical capacity of the road above traditional standards. A better representation of traffic conditions along a roadway is the operation of upstream and downstream intersections on the segment during peak hour periods. Traffic conflicts at intersections are typically the limiting factors that affect a roadway’s ability to carry traffic.

3.1.4.5 Evaluation of CVN Contribution to 2007 Baseline Traffic Conditions

Historical records used in the 1999 FEIS revealed that when 3 carriers were homeported, all 3 carriers were only in port simultaneously for 13 intermittent, non-consecutive days, or 4 percent of the year. Based on updated operation and maintenance plans, recent Navy predictions forecast that with 3 CVNs homeported at NASNI, all 3 ships will be in port an average of 29 intermittent, non-consecutive days each year, or 8 percent of the year. Each homeported CVN is estimated to add 4,793 daily trips to the roadways when in port. Additionally, in developing the current trip generation estimate, specific assessment of Navy regulations regarding onshore Sailor practices and permitted activities for the CVNs was evaluated to establish a more updated expectation of offsite commuter vehicle use than was assumed in the 1999 FEIS. This resulted in a slightly higher percentage of peak hour trips estimated to be generated by NASNI personnel.

3.1.5 Evaluation of 2000 ROD Mitigation

3.1.5.1 Staggered Work Hours

In the 2000 ROD, the Navy agreed to provide staggered work shift timing when 3 carriers are in port simultaneously. Figure 3.1-7 illustrates the distribution of carrier traffic over a typical 24-hour period on a weekday if work hours are not staggered. As shown in the figure, 2 large peaks would occur during the A.M. and P.M. peak periods, which assume a work start time of 7:00 A.M. In the A.M. peak hour, 4,176 vehicles would arrive at NASNI between 5:30 A.M. and 6:30 A.M. in order to report for duty at 7:00 A.M. In the afternoon peak, the same 4,176 vehicles would leave NASNI between 2:30 P.M. and 3:30 P.M. During the remaining hours of the day, traffic would be significantly reduced.

Figure 3.1-7 Effects of Non-Staggered Work Hours with 3 CVNs in Port

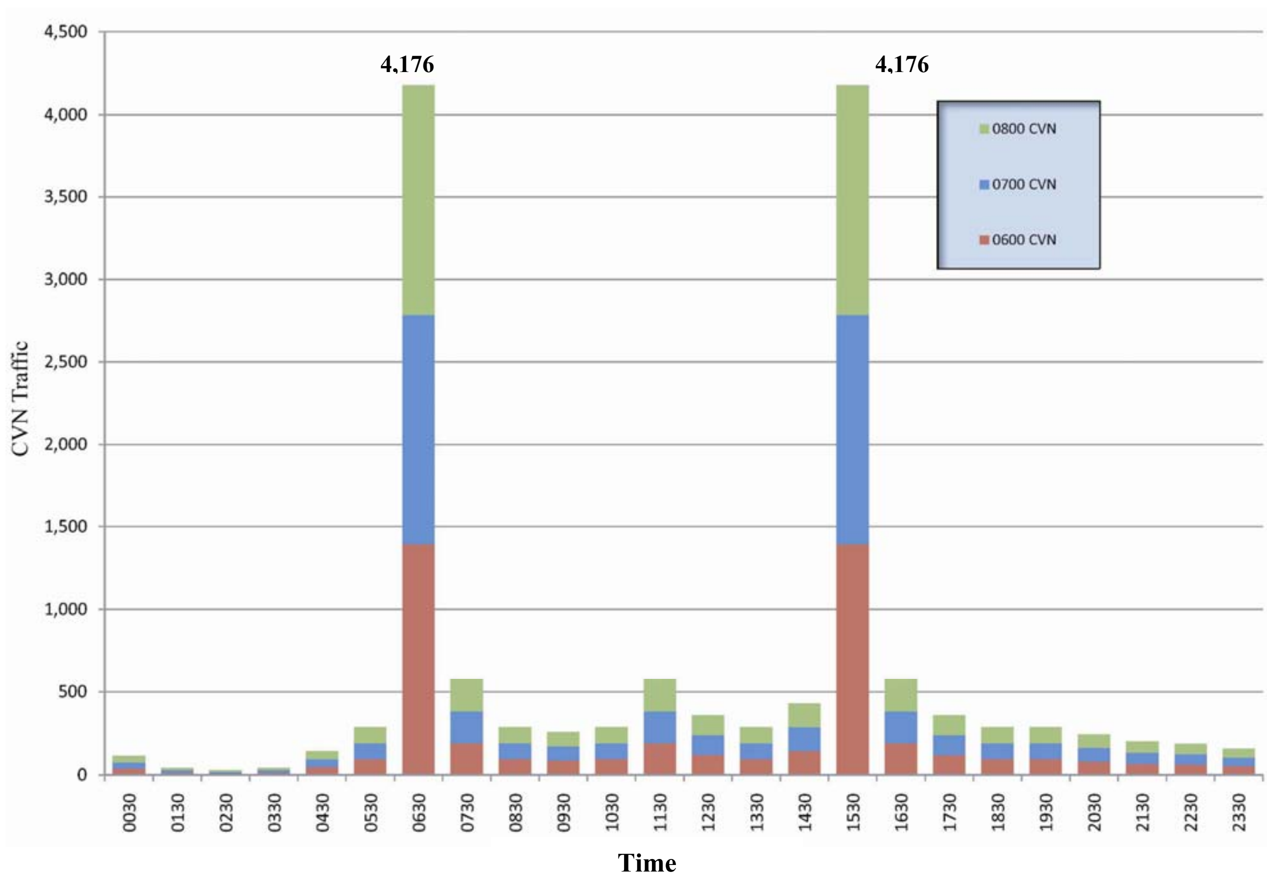


Figure 3.1-8 shows how the staggering of start times reduces the severity of the peak 1-hour traffic volumes for inbound and outbound traffic. While this spreading of work hours results in a dramatic reduction of 1,700 vehicles during the peak 1-hour period, it extends the peak hour traffic to a 3-hour period for an average of 29 intermittent, non-consecutive days per year. The extended NASNI morning peak would occur from 5:30 A. M. to 7:30 A. M., coming to an end as the community peak hour begins (7:30 A. M. to 8:30 A. M). Likewise, in the evening the NASNI peak hour would occur from 2:30 P. M. to 4:30 P. M., prior to the community evening peak hour (4:30 P. M. to 5:30 P. M.).

Figure 3.1-8 Effects of Staggered Work Hours with 3 CVNs in Port

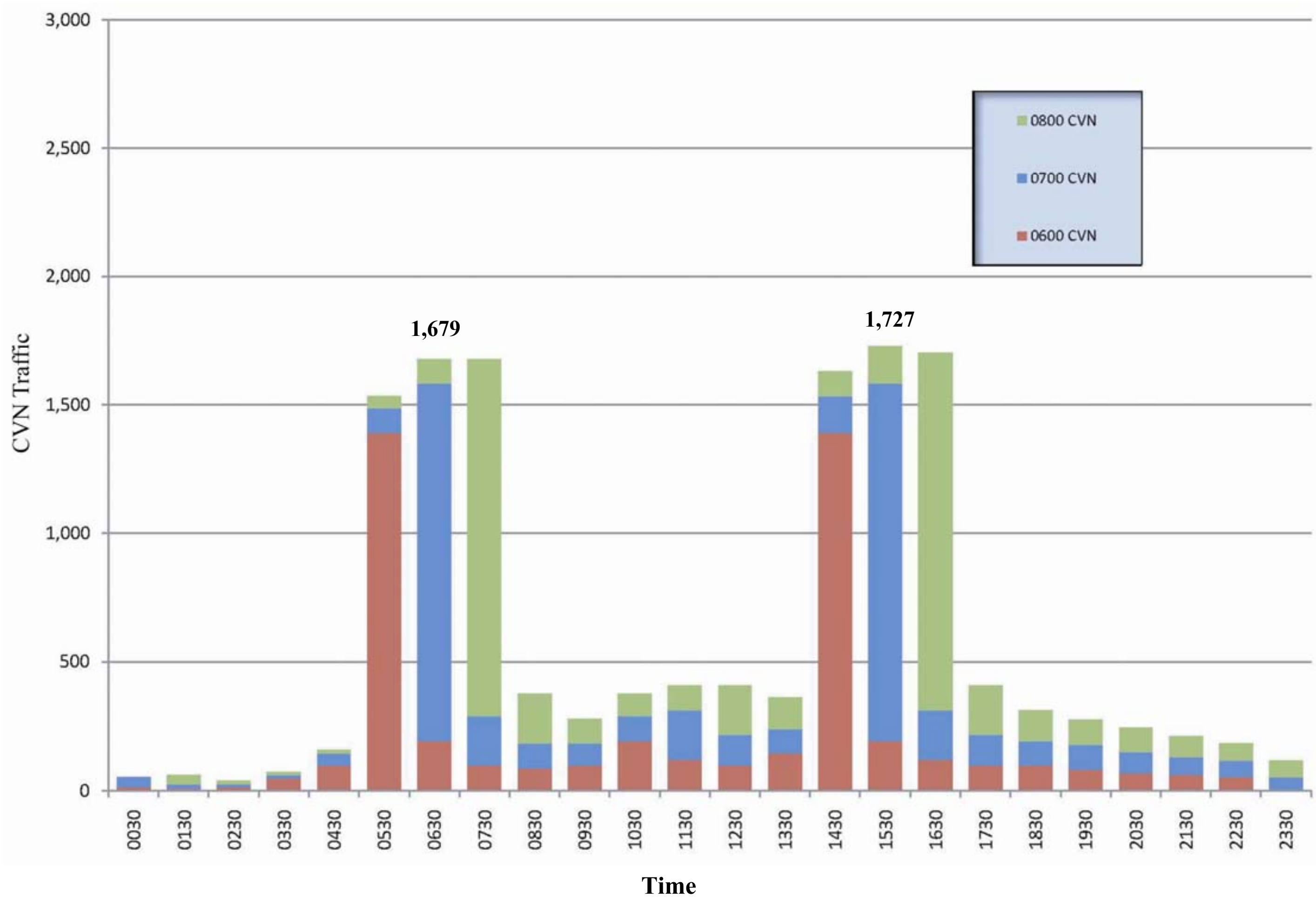


Table 3.1-9 summarizes the resulting daily and peak hour traffic generation for 3 different scenarios of non-staggered CVNs being in port at the same time, plus the scenario with 3 CVNs with staggered work times. The first line in the table illustrates the trip generation associated with 1 carrier in port. The second line illustrates the trip generation associated with 2 CVNs, both starting and ending their work day at the same time. The third line shows the trip generation associated with 3 CVNs, all starting and ending their work day at the same time. The final line shows the trip generation of 3 CVNs, with start times at 6:00 A.M., 7:00 A.M., and 8:00 A.M. Instead of a peak hour ADT of 4,176 the estimated peak traffic would be 1,679 vehicles in the morning peak hour and 1,727 in the afternoon. Comparing the 3 CVN with staggered work hour scenario to having only 1 CVN in port, the former would generate only 287 additional vehicles during the morning peak hour and 335 during the afternoon peak hour. This clearly

illustrates the effectiveness of staggered work hours in reducing the traffic added to the highest morning and afternoon peak hour.

Table 3.1-9 Traffic Added for Each CVN in Port Simultaneously

Scenario	Total Traffic		
	AM Peak	PM Peak	Daily Total
1 CVN	1,392	1,392	4,793
2nd CVN	2,784	2,784	9,586
3rd CVN without staggered work times	4,176	4,176	14,379
3rd CVN with staggered work times	**1,679**	**1,727**	**14,379**
Net Change: 1 CVN to 3 CVNs with staggered work times	287	335	9,586

3.1.5.2 Other 2000 ROD Mitigations

In addition to the staggering of work times, the 2000 ROD also committed the Navy to encourage carpools and vanpools and subsidize the use of public transportation by military personnel and civilian employees in an effort to reduce traffic congestion on local roads. A variety of private and public transit options are available for commuters that work at NASNI, including bus and ferry service.

The regional Metropolitan Transit System (MTS) serves Coronado with 2 bus routes, one of which provides access to the NASNI main gate. Route 901 runs from Downtown San Diego, across the San Diego-Coronado Bridge, through the City of Coronado to the City of Imperial Beach and the Otay Mesa Community of the City of San Diego. The route travels along both SR-75 and SR-282, and provides a transit stop just outside the NASNI Base Main Gate. With the completion of the Third Street Gate, the bus route now stops on base just west of Alameda Boulevard. The route provides daily service every 15 minutes on weekdays during peak periods, and every 30 minutes on weekdays during non-peak periods and on weekends. Route 901 is one of the MTS' top ten routes for high ridership.

A commuter ferry runs during peak periods between the Broadway Pier, NASNI, and Coronado Landing Marketplace. These sailings depart every 45 minutes to one hour between approximately 5:30 A.M. to 8:30 A.M. and 2:00 P.M. to 5:00 P.M. on Mondays through Fridays. The ferry is operated by the private company Harbor Excursions. The ferry to and from NASNI is free for military personnel with proper identification. During 2006, an average of 212 people used the ferry during the weekday, based on data provided by Harbor Excursions. This is a decrease from 250 people taking the daily ferry to NASNI in 2004, but an increase over the 125 riders reported in 1999.

To extend the commuter service available to NASNI employees provided by the Route 901 bus and the ferry, the MTS also operates the San Diego Trolley system, which serves several cities throughout San Diego County. Although the trolley does not pass through the City of Coronado, many commuters to and from the City of Coronado and NASNI use the trolley in combination with the bus or ferry. Both the Orange and Blue trolley lines serve Downtown San Diego, with stops at major transit centers, including the Santa Fe Depot near the Broadway ferry dock. MTS also operates the COASTER, a passenger train that runs between the City of Oceanside and Downtown San Diego. The train has a stop at the Santa Fe Depot in Downtown San Diego, which is near the Broadway ferry dock.

In compliance with the ROD requirement, the Navy provides a transit subsidy program to help offset some of the costs for employees commuting with the use of mass transit and vanpools. Since July 2001, the TIP has provided a substantial benefit to employees who use all forms of mass transportation. Each user of this program receives up to $110 per month in tax free assistance. In general, the 6 forms of public transportation eligible for TIP are the following:

- The COASTER
- San Diego Trolley
- MTS Buses
- San Diego Bay Ferry
- Vanpool Services, Inc. (VPSI) Vanpool
- Ridesharing

The program covers the cost of a bus and trolley pass, heavily subsidizes a monthly pass for the COASTER, and offers varying degrees of vanpool subsidy. In 2007, the TIP included 801 vanpoolers riding in 82 vanpools, 48 riding the COASTER (commuter train), 526 bus and trolley pass holders, and 5 using AMTRAK, for a total of 1,378 commuters using the program (approximately 6 percent of the military personnel and Navy civilian employees). This level of participation is the equivalent of approximately 700 vehicles per day not traveling the roadways of San Diego County and Coronado. Over the last 6 years, over 4,500 Sailors and civilians have used the TIP benefit and helped to reduce traffic congestion.

In 2007, the TIP implemented wide-ranging outreach and communication efforts to broadly advertise the program and increase awareness and participation. In 2008, the Navy was awarded a Diamond Award for Program Excellence by SANDAG to acknowledge the success of the TIP. A 30 percent increase in participants in the TIP over the last 5 years is demonstrated in Table 3.1-10. Additionally, SANDAG and the Navy have engaged in an ongoing effort to increase ridership on mass transit.

Table 3.1-10 Participation in NASNI Transportation Incentive Program 2004-2008

Year	Amtrak	Bus & Trolley	COASTER	Vanpoolers	Total
2004	1	626	48	460	1135
2005	1	605	48	550	1204
2006	4	525	48	652	1202
2007	5	526	46	801	1378
2008(1)	2	595	66	850	1513

(1) through September 2008

3.1.6 Summary and Conclusions

Since the completion of the 1999 FEIS and 2000 ROD, new circumstances and information associated with baseline traffic conditions both on and off NASNI have emerged, and the expected frequency of 3 CVNs being in port simultaneously has been revised upward. In response to these changes, the Navy prepared a 2008 Traffic Study (Appendix C) to evaluate the implications of the changes and to establish new and updated baseline traffic conditions for key elements of the local transportation network. The study also evaluated the effectiveness of 2000 ROD traffic mitigations, in particular the effects of staggered work times on peak hour traffic totals. Lastly, the 2008 Traffic Study projected future cumulative conditions on the network and suggested potential traffic improvements that could help reduce traffic congestion on the most deficient portions of the road network (see Chapter 6).

The SEIS traffic evaluation considers the same traffic scenario studied by the 1999 FEIS: traffic generated by 3 CVNs homeported at NASNI, with 3,217 personnel associated with each carrier. More recent data and policies associated with carrier activity indicates that a slightly higher daily trip rate (1.49 as compared to 1.47 in the 1999 FEIS) and higher peak hour trip rates (29 percent as compared to 18 percent in the 1999 FEIS) would occur. In addition, the 2000 ROD committed the DON to implement the staggering of work times when 3 carriers are simultaneously in port (an event that is now expected to occur on average 29 intermittent, non-consecutive days per year compared to 13 days intermittent and non-consecutive days assumed in the 1999 FEIS).

When comparing the peak hour traffic associated with 2 additional CVNs (i.e., comparing the trip rate assumptions from the 1999 FEIS to the peak hour trips projected in the 2008 Traffic Study for 3 CVNs with the required staggering of work times), there would be roughly the same levels of traffic (23 fewer trips in the morning peak hour and 25 more trips in the afternoon peak hour). Based on these considerations, it is concluded that direct traffic impacts associated with 3 CVNs have not changed significantly since they were studied in the 1999 FEIS.

In addition, based on the evaluation presented above, it is concluded that the implementation of other 2000 ROD mitigation measures associated with encouragement of car- and vanpools and subsidization of public transportation alternatives has been effective in reducing both peak hour and total traffic on the local and regional road network.

The Navy acknowledges that, as a whole, NASNI contributes significantly to average traffic volumes in the area. However, NASNI-related traffic exists within the context of failed traffic operating conditions within the local road network, conditions that are collectively also the result of continuing growth in population, development, and tourism within the City of Coronado. These cumulative traffic conditions are described further in Chapter 6 of this SEIS.

3.2 TRAFFIC-RELATED AIR QUALITY

Section 3.10 of the 1999 FEIS provided a detailed description and background terminology for air quality conditions within the San Diego Air Basin (SDAB), which includes all of San Diego County. Air quality conditions addressed in that document included regulatory setting, meteorological conditions, and current emission sources at NASNI. The 1999 FEIS summarized the best available data to characterize air quality conditions at the project site, and much of the background information remains applicable to current conditions in the project area.

The effects of homeporting 3 CVNs at NASNI were comprehensively assessed in a detailed air quality impact analysis in the 1999 FEIS. No substantial changes have occurred in the number of CVNs homeported or number of personnel assigned and, therefore, the air quality impact assessment previously conducted remains valid. Included in the 1999 FEIS was a General Conformity Rule Record of Non-Applicability, which documented that no applicable air emission thresholds would be exceeded by homeporting 3 CVNs.

Since the 1999 FEIS was written, the following substantial changes have occurred in the affected environment for air quality: (1) updated federal and state air quality standards; (2) updated attainment status relative to air quality standards; and (3) updated baseline monitoring data. To address this new information, two types of assessments of air quality impacts have been undertaken: (1) traffic-related air quality impacts and (2) assessment pursuant to the General Conformity Rule for the minor infrastructure improvements proposed at Berth LIMA. Traffic-related impacts are addressed in this chapter, while potential air quality impacts associated with Berth LIMA construction activities are addressed in Chapter 4. Background information on the General Conformity Rule is also provided in Chapter 4.

3.2.1 Affected Environment: Air Quality

3.2.1.1 Air Quality Standards

The EPA designates all areas of the U.S. according to their status of compliance with the National Ambient Air Quality Standards (NAAQS). Each area is designated as being in attainment of (air quality better than or equal to) or in nonattainment of (air quality worse than) the NAAQS. The criteria for assignment of a nonattainment designation vary by pollutant. An area is in nonattainment for Ozone (O_3) if the NAAQS have been exceeded more than 3 discontinuous times in 3 years, and an area is generally in nonattainment for any other pollutant if the NAAQS have been exceeded more than once per year. Former nonattainment areas that have met the NAAQS are designated as maintenance areas. State standards are also established by the California Air Resources Board (CARB) and are called the California Ambient Air Quality Standards (CAAQS). The CAAQS are at least as restrictive as the NAAQS and for certain pollutants include action thresholds that do not exist under national standards (CARB 2008a) (Figure 3.2-1). For example, the CAAQS have a 1-hour standard for O_3 while the NAAQS do not. Federal agencies such as the Navy are not required to comply with state standards. Although the Ambient Air Quality Standards for the federal O_3 standard has been recently updated (CARB 2008a), the area designations and attainment status information for the SDAB is based on the 1997 O_3 standards.

It should be noted that lead emissions have been diminished greatly with the requirement that unleaded gasoline be used in automobiles (which in the past were the major sources of atmospheric lead); consequently, air quality impacts related to lead are not evaluated in this SEIS.

3.2.1.2 Air Quality Monitoring Data

An emission rate represents the mass of a pollutant released into the atmosphere by a given source over a specified period of time. Emission rates can vary considerably depending on type of source, time of day, and schedule of operation. The San Diego County Air Pollution Control District (SDCAPCD) periodically updates emissions for the entire SDAB for purposes of forecasting future emissions, analyzing emission control measures, and for use in regional air quality modeling. The largest regional sources of air emissions are on-road vehicles. The 2006 inventory determined that on-road vehicles emitted 35 percent of the volatile organic compounds (VOCs), 59 percent of the oxides of nitrogen (NO_x), and 67 percent of the carbon monoxide (CO) emissions within the SDAB (CARB 2008c). Another large source of VOCs is the use of surface coatings and solvents. Combustion sources produce both primary fine particulate matter and fine particulate precursor pollutants, such as nitrogen dioxide (NO_2), which react in the atmosphere to produce secondary fine particulates. Coarser particles mainly occur from soil-disturbing activities, such as construction, mining, agriculture, and vehicular road dust.

Ambient air quality conditions in the San Diego area are monitored at many locations. Baseline air quality conditions in the vicinity of NASNI can be inferred from the most recent air quality measurements conducted at monitoring stations located in close proximity to NASNI (e.g., Beardsley Street Monitoring Station). Representative air quality data for NASNI for the most recent years for which data are available (2004-2006) are shown in Table 3.2-1.

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS[1]	NATIONAL STANDARDS[2]	
			Primary	Secondary
Ozone (O_3)	8 Hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)	Same as Primary Standards
	1 Hour	0.09 ppm (180 μg/m^3)	•	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	•
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 μg/m^3)	0.053 ppm (100 μg/m^3)	Same as Primary Standard
	1 Hour	0.18 ppm (338 μg/m^3)	•	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	•	0.030 ppm (80 μg/m^3)	•
	24 Hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)	•
	3 Hour	•	•	0.5 ppm (1300 μg/m^3)
	1 Hour	0.25 ppm (655 μg/m^3)	•	•
Respirable Particulate Matter ≤ 10 Microns in Diameter (PM_{10})	Annual Arithmetic Mean	20 μg/m^3	•	Same as Primary Standards
	24 Hour	50 μg/m^3	150 μg/m^3	
Respirable Particulate Matter ≤ 2.5 Microns in Diameter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	15.0 μg/m^3	Same as Primary Standards
	24 Hour	No Separate Standard	35 μg/m^3	
Sulfates	24 Hour	25 μg/m^3	•	•
Lead (Pb)[3]	30 Day Average	1.5 μg/m^3	•	•
	Calendar Quarter	•	1.5 μg/m^3	Same as Primary Standard
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 μg/m^3)	•	•
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 μg/m^3)	•	•
Visibility Reducing Particles	8 Hour (10:00 A.M. to 6:00 P.M.)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with California Air Resources Board (CARB) Method V.	•	•

ppm – parts per million μg/m^3 – micrograms per cubic meter mg/m^3 – milligrams per cubic meter • – no standard established

(1) CO, SO_2 (1- and 24-hour), NO_2, O_3, PM_{10}, and visibility reducing particles standards are not to be exceeded. All other California Standards are not to be equaled or exceeded.

(2) Not to be exceeded more than once a year except for annual standards.

(3) The federal standard for lead will be lowered from 1.5 μg/m^3 to 0.15 μg/m^3 effective January 12, 2009.

Source: CARB 2008a (updated 6/26/08).

Figure 3.2-1
California and National Ambient Air Quality Standards

Table 3.2-1 Representative Air Quality Data for NASNI (2004-2006)

Air Quality Indicator[(1)]	2004	2005	2006
Ozone[(2)]			
Peak 8-hour value (ppm)	-	0.063	0.070
Days above federal standard (0.075 ppm)	-	0	0
Carbon Monoxide[(3)]			
Peak 8-hour value (ppm)	3.60	3.89	3.50
Days above federal/state standard (9.0 ppm)	0	0	0
Particulate Matter Less than 10 microns in diameter[(2)]			
Peak 24-hour value ($\mu g/m^3$)	-	77.0	76.0
Days above federal standard (150 $\mu g/m^3$)	-	0	0
Days above state standard (50 $\mu g/m^3$)	-	5	1
Annual Average value (ppm)	-	37.0	33.6
Particulate Matter Less than 2.5 microns in diameter [(2)]			
Peak 24-hour value ($\mu g/m^3$)	-	44.1	63.3
Days above federal/state standard (35 $\mu g/m^3$)[(4)]	-	0	0
Annual Average value (ppm)	-	-	13.1
Sulfur Dioxide[(2)]			
Peak 24-hour value (ppm)	-	0.005	0.009
Days above federal standard (0.14 ppm)	-	0	0
Days above state standard (0.04 ppm)	-	0	0
Annual Average value (ppm)	-	0.003	0.004
Nitrogen Dioxide[(2)]			
Peak 1-hour value (ppm)	-	0.100	0.094
Days above state standard (0.18 ppm)	-	0	0
Annual Average value (ppm)	-	-	0.021

Source: CARB 2008d.

Notes: [(1)] The Ambient Air Quality Standards listed are based on the most recent standards available (CARB 2008a).

[(2)] Data from the San Diego (Beardsley Street) Monitoring Station.

[(3)] Data from the San Diego (Union Street) Monitoring Station.

[(3)] The previous federal/state standard during the representative reporting period (2004-2006) was 65 $\mu g/m^3$; therefore, the monitoring data indicates that the standard in effect at the time was not exceeded. The new $PM_{2.5}$ standards (35 $\mu g/m^3$) took effect in 2007.

- Indicates that no monitoring data was available for the year indicated.

The SDAB is in basic nonattainment for the federal O_3 standard, is considered a maintenance area for the CO standard, and is in attainment of the federal standards for NO_2, sulfur dioxide (SO_2), and particulate matter less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$). The SDAB is in nonattainment of the state O_3, PM_{10} and $PM_{2.5}$ standards (CARB 2008b; EPA 2008).

The monitored, local air quality conditions near NASNI indicate that no exceedances of the NAAQS were recently recorded. Exceedances of the CAAQS occurred for PM_{10}.

The overall emissions inventory related to current CVN operations is expected to be below the 1999 FEIS baseline condition, primarily due to the following:

- The replacement of CV with CVN resulted in the elimination of the fuel oil-fired CV power plant emissions associated with the CV operations.
- The improvement of vehicular exhaust emissions due to various emission control measures, such as Inspection and Maintenance programs, clean fuel programs, etc., that have been implemented on both federal and state levels over recent years.

The emissions benefits of replacing CVs with CVNs are discussed in the 1999 FEIS.

3.2.2 Traffic-Related Air Quality Impacts

3.2.2.1 Approach to Analysis

The Clean Air Act (CAA) requires federal agencies to ensure that their actions conform to the State Implementation Plan (SIP) in a nonattainment area. The SIP is the document that sets forth the state's strategies for achieving air quality standards. Conformity to a SIP, as defined in the CAA, means conformity to a SIP's purpose of reducing the severity and number of violations of the NAAQS to achieve attainment of these standards. The federal agency responsible for an action is required to determine if its action conforms to the applicable SIP.

The EPA developed 2 sections of the conformity regulations in the CAA that are applicable to a federal action. These regulations differentiate federal actions into the following:

- Transportation projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration, which are governed by the Transportation Conformity Rule.
- Non-transportation-related projects requiring actions by non-transportation agencies, which are governed by the General Conformity Rule.

Since the traffic related to homeported CVNs is not a transportation project covered by the Transportation Conformity Rule, the General Conformity Rule is applicable to traffic related to homeported CVNs, per 40 CFR Parts 6, 51, and 93. In addition to the criteria pollutants, the CAA also lists 188 air toxics, known as hazardous air pollutants (HAPs). Toxic air pollutants include a number of substances that are known or suspected to cause cancer or other health effects in humans when they are exposed to certain levels of the pollutants. The CAA authorizes the EPA to characterize and control emissions of these pollutants. However, unlike the criteria pollutants, ambient air quality standards have not been established by the EPA for the majority of the air toxics. For air toxic pollutants, EPA has identified a group of 21 HAPs as mobile source air toxics, among which a total of 6 air toxics are considered the priority Mobile Source Air Toxics (MSATs). These priority MSATs include benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene and their health effects are summarized in Appendix D.

3.2.2.2 Significance Criteria

Air quality impacts would be significant if emissions associated with the traffic related to homeported CVNs would: 1) increase ambient air pollution concentrations above the NAAQS; 2) contribute to an existing violation of the NAAQS; 3) interfere with, or delay timely attainment of the NAAQS; or 4) impair visibility within federally-mandated Prevention of Significant Deterioration Class I areas.

3.2.2.3 Impact Analysis

Traffic conditions around the base have changed substantially since the 1999 FEIS. Moreover, the FHWA and EPA issued guidance and analysis procedures in 2006 to address particulate matter (PM) associated with mobile source operations, which were not available or considered during preparation of the 1999 FEIS. Because of these new circumstances, a microscale level analysis was performed for mobile source air pollutants CO and PM (PM_{10} and $PM_{2.5}$). Other mobile source air pollutants of regional concern, NOx and VOC emissions from commuting vehicles, were analyzed and discussed in the 1999 FEIS as part of the CAA general conformity analysis undertaken for the Proposed Action. There are no new circumstances that require an update of this analysis. The 1999 FEIS calculations show that increasing the number of days when a third carrier is in port from 13 days to 29 days results in a minimal emissions increase since the 16-day increase from 13 to 29 is only slightly more than the original 13-day increase analyzed in the 1999 FEIS and emissions from sources, such as the dependent vehicles, would be unchanged by the increase in the number of homeported days.

The following microscale (also referred as a hot-spot) analysis of traffic-related impacts at intersections or free flow sites provides estimates of localized pollutant concentrations for direct comparison to the NAAQS and/or applicable impact thresholds.

<u>Carbon Monoxide Impact Analysis</u>

The CO concentrations were modeled for the conditions in which the highest traffic volumes were forecasted (Year 2030 non-staggered 3 CVNs) at the following 2 intersections:

- Fourth Street and Orange Avenue.
- Tarawa Road and Silver Strand Boulevard.

These intersections, in the year 2030 for 3 non-staggered CVNs, were projected to have the highest congestion rate and highest traffic volumes in the traffic study (Appendix C). This represented the worst case scenario and the points at which CO concentrations would be highest.

The modeling was performed in 2 steps:

1) Vehicle exhaust emission factors were estimated using the CARB EMFAC2007 mobile source emission factor model with associated default input parameters for the winter season that are applicable to the San Diego area.
2) The estimated emission factors were subsequently used as input for the CALTRANS/EPA CALINE4 dispersion model to calculate CO concentrations at selected intersections with the peak hour traffic conditions as well as the worst-case meteorological conditions.

The conservatively-predicted CO concentrations are shown in Table 3.2-2. The concentrations are well below the 1-hour CO NAAQS and CAAQS, and the 8-hour CO NAAQS and CAAQS at both of the modeled intersections. Therefore, traffic related to homeported CVNs would not result in significant traffic-related CO impacts. A detailed discussion of the CO Impact Analysis is presented in Appendix D.

Table 3.2-2 Modeled CO Levels

Intersection	1-Hour Concentration (ppm)		8-Hour Concentration (ppm)	
	AM	PM	AM	PM
Fourth Street / Orange Avenue	5.0	5.1	3.4	3.5
Tarawa Road / Silver Strand Boulevard	4.8	5.0	3.3	3.4

Notes: CO levels include background concentrations of 4.4 ppm (1-hour) and 3.0 ppm (8-hour).
NAAQS CO 1-hour standard is 35 ppm; the 8-hour standard is 9 ppm.
CAAQS CO 1-hour standard is 20 ppm; the 8-hour standard is 9 ppm.
Calculations are based on the highest traffic volumes (Year 2030 traffic with 3 CVNs in port on a non staggered schedule) at the most degraded intersections

Particulate Matter Impact Analysis

The traffic-related PM ($PM_{2.5}$ and PM_{10}) impact analysis was performed based on the qualitative hot-spot analysis procedures and guidelines established by the EPA.

According to truck mix data measured and forecasted by CALTRANS, the vehicle mix along the major arterial roads to and from NASNI would consist of the following:

- Auto – 96 percent.
- Medium-duty truck – 3 percent.
- Heavy-duty truck – 1 percent.

Based on the conservative assumption that all trucks (including medium-duty trucks) are diesel-powered, a total of only 4 percent of the vehicles are diesel trucks, which is still well below the 8 percent threshold for potential PM air quality concerns. Therefore, according to the EPA's guidelines, a $PM_{2.5}$ and PM_{10} hot-spot analysis would not be required for the traffic related to homeported CVNs. Consequently, it can be reasonably concluded that traffic related to homeported CVNs would not cause or contribute to a violation of the $PM_{2.5}$ or PM_{10} NAAQS; nor would traffic related to homeported CVNs increase the frequency of an existing exceedance of the $PM_{2.5}$ or PM_{10} CAAQS. Therefore, traffic related to homeported CVNs would not result in significant traffic-related PM impacts. A detailed discussion of the PM impact analysis is provided in Appendix D.

3.2.2.4 Summary and Conclusion

Based upon the above analysis, no significant traffic-related impacts to air quality would occur. Because no significant traffic-related impacts to air quality would occur as a result of traffic related to homeported CVNs, no mitigation measures are proposed or required.

3.3 TRAFFIC-RELATED NOISE

3.3.1 Affected Environment: Noise

Noise can be defined as any sound that interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Although exposure to very high noise levels can cause hearing loss, the principal human response to noise is annoyance. Human response to noise can vary according to the type and source of the noise, the distance between the source and the receptor, the perceived importance of the noise, its appropriateness in the setting, and the sensitivity of the receptor.

Noise levels are measured in decibels (dB), which are based on a logarithmic scale (e.g., a 10-dB increase corresponds to a 100 percent increase in perceived sound). Under most conditions, a change of 5 dB is required for humans to perceive a change in the noise environment (USEPA 1972). Common noises range from 30 dB for a quiet room to 100 dB for a loud power lawn mower at close range. Normal speech registers at approximately 60 dB. At a constant level of 70 dB, noise can be irritating and disruptive to speech; at louder levels, hearing losses can occur. A difference of 3 dB represents a doubling of sound level in terms of energy. However, because of the mechanics of human hearing, it is necessary to have a 10-dB increase to be *perceived* as a doubling in sound.

Noise measurements assessed relative to human exposure are usually expressed using an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the unit of measurement (dBA) in order to identify that the measurement has been made with this filtering process. Human hearing ranges from approximately 20 dBA (the threshold of hearing) to 120 dBA (the threshold of pain).

Because noise levels vary widely during the day, they are commonly averaged over a period of time. The term Day-Night Average Level (Ldn) is used to describe the average noise level during a 24-hour day with a penalty of 10 dBA added to nighttime sound levels (10 P.M. to 7 A.M.). The Community Noise Equivalent Level (CNEL) adds a 5 dBA penalty for noise events that occur in the evening (7:00 P.M. to 10:00 P.M.), as well as a 10 dBA penalty for noise events at night (10:00 P.M. to 7:00 A.M.). Shorter measurement durations (typically 1 hour) are described as Leq, indicating the total energy contained by the sound over a given sample period. The Leq for 1 hour is the energy average noise level during the hour; specifically, the average noise based on the energy content (acoustic energy) of the sound. It can be thought of as the level of a continuous noise that has the same energy content as the fluctuating noise level. The Leq for a 24-hour period is the Ldn / CNEL without the penalties. Time-averaged noise levels such as Ldn and CNEL are often used as the basis for land use compatibility guidelines.

Daytime urban environments with heavy vehicle traffic including trucks typically have noise levels ranging between 60 and 80 dBA (CALTRANS 1998). Given the neighborhood land uses/activities around NASNI, it is expected that existing peak noise levels at those residences along main traffic routes could range from 65 dBA to 75 dBA.

3.3.2 Traffic-Related Noise Impacts

The methodology used for predicting future traffic noise increases assumes that existing noise levels are dominated by, and are a function of, existing traffic volumes adjacent to individual receptors and that future noise levels can be determined based on the proportional increase in traffic. For example, if the current traffic volume on a street is 100 vehicles per hour (vph) and the future volume were to increase by 50 vph, for a total of 150 vph, the noise levels would increase by approximately 2 dBA according to standard acoustical principles using a logarithmic relationship (see Appendix F for more details from the noise impact analysis). If future traffic were to increase by 100 vph to a total of 200 vph, noise levels would increase by 3 dBA.

The traffic volumes used for this analysis under various scenarios were obtained from the Final Traffic Study for the SEIS for Developing Homeport Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet produced by HELIX Environmental Planning, Inc. in 2008. The worst-case (highest volume) conditions – i.e., 2030 Horizon Year with 3 CVNs homeporting at NASNI – were analyzed.

The traffic volume increases along the major NASNI access roads off base and the resulting traffic noise increases were calculated by comparing the future 2030 traffic conditions with 3 non-staggered CVNs to the following 3 baseline scenarios:

- 2007 baseline 1 CVN conditions.
- 2007 baseline 2 CVNs conditions.
- 2030 future 2 CVNs conditions.

FHWA has established noise abatement criteria (NAC) that define limits beyond which noise abatement measures must be considered. The NAC are applicable only to Type I projects, which the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise define at 23 CFR 772.5(h) as federal or federal-aid highway projects for:

- Construction of a highway on new location.
- Physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment.
- Addition of through-traffic lanes.

The traffic related to homeported CVNs is not a Type I project and; therefore, the NAC do not apply.

Alternatively, in addressing traffic noise impacts from any highway project, FHWA defines that a traffic noise impact would occur when a substantial increase in noise levels over existing condition is predicted, per 23 CFR 772.5(g). To be considered substantial, a noise increase must reach at least 12 dBA L_{eq} based on CALTRANS guidelines (CALTRANS 2008). In this SEIS, the 12 dBA substantial increase threshold was used, as was a barely perceptible noise change (3 dBA) threshold. The 3 dBA threshold was used as the measure for determining a potential noticeable traffic noise increase in the roadway network.

The greatest difference in the predicted ranges of noise related to homeported CVN traffic would be between the current conditions with 1 CVN in port and the year 2030 traffic with 3 non-staggered CVNs in port. The increase in levels of noise for each of the intersections can be seen in Table 3.3-1. These levels would be at most barely perceptible, with a range of 0.0 to 3.1 dBA in increased noise.

Therefore, the potential off-base traffic noise impacts would not be significant and no noise mitigation measures are warranted. The calculation worksheets are included in Appendix F.

Table 3.3-1 Difference in Noise Levels (dBA) Between the 2030 Traffic Condition with 3 Non-staggered CVNs and the 2007 Existing Traffic Conditions with 1 CVN

Street	Location	Traffic Volume 2007 Existing (1 CVN)		Traffic Volume 2030 (3 CVNs)		2030 Noise Increase from Existing 1 CVN	
		AM	PM	AM	PM	AM	PM
Third St.	East of Alameda Blvd.	2586	644	3959	1013	1.8	2.0
	West of D Ave.	2461	783	4089	1290	2.2	2.2
	East of D Ave.	2513	849	4078	1342	2.1	2.0
	West of Orange Ave.	2447	875	3949	1352	2.1	1.9
	East of Orange Ave.	4119	1785	6043	2778	1.7	1.9
	West of Pomona Ave.	4125	1787	6113	2940	1.7	2.2
Fourth St.	East of Alameda Blvd.	436	1681	759	3200	2.4	2.8
	West of D Ave.	653	1768	1025	3618	2.0	3.1
	East of D Ave.	709	1893	1055	3639	1.7	2.8
	West of Orange Ave.	648	1907	1058	3670	2.1	2.8
	East of Orange Ave.	1430	2945	1861	5299	1.1	2.6
	West of Pomona Ave.	1136	2949	1564	5254	1.4	2.5
	East of Pomona Ave.	1215	2970	1638	5241	1.3	2.5
	West of Glorietta Blvd.	4105	1671	6081	2836	1.7	2.3
	East of Glorietta Blvd.	1708	3773	2052	6443	0.8	2.3
Orange Ave.	South of Third St.	2110	2090	2662	2892	1.0	1.4
	North of Fourth St.	2177	2098	2741	2903	1.0	1.4
	South of Fourth St.	1454	1085	1806	1462	0.9	1.3
	North of Fifth St.	574	782	731	1103	1.1	1.5
	South of Fifth St.	1385	1009	1867	1540	1.3	1.8
	South of Sixth St.	1326	1042	1817	1474	1.4	1.5
	North of Eighth St.	544	820	625	1076	0.6	1.2
	South of Eighth St.	1293	1002	1604	1383	0.9	1.4
	North of Tenth St.	509	815	583	1016	0.6	1.0
	South of Tenth St.	1243	1079	1495	1260	0.8	0.7
	North of R.H. Dana Pl.\Adella Ave.	496	789	522	1016	0.2	1.1
	South of R.H. Dana Pl.\Adella Ave.	1352	1616	1579	1838	0.7	0.6
	North of Pomona Ave.	2335	2450	3017	3110	1.1	1.0
Pomona Ave.	South of Third St.	4094	1665	6093	2838	1.7	2.3
	North of Fourth St.	4105	1669	6077	2816	1.7	2.3
	South of Fourth St.	377	333	408	355	0.3	0.3
	North of Glorietta Blvd.	844	896	914	1017	0.3	0.6
	South of Glorietta Blvd.	764	1013	778	1155	0.1	0.6
	North of Orange Ave.\Silver Strand Blvd.	980	1046	991	1112	0.0	0.3
Silver Strand Blvd.	East of Pomona Ave.	3315	3488	3970	4168	0.8	0.8

Note: This is a worst-case scenario based on traffic noise from the largest projected level of increased traffic.

CHAPTER 4
CVN INFRASTRUCTURE IMPROVEMENTS AT BERTH LIMA

This chapter evaluates the environmental impacts of the Proposed Action to construct minor infrastructure improvements at Berth LIMA (MILCON P-704) to satisfy current standards for CVN homeports. The implementation of these minor infrastructure improvements would take from 12 to 18 months to accomplish. Pile driving activities are expected to be completed within approximately 30 days, although efforts would be made to complete this activity in the shortest time possible. The impact analysis focuses on potential effects to the following 4 resource areas: air quality, noise, biological resources, and marine water resources. In the course of selecting these 4 resource areas to carry forward for analysis in this Chapter, Navy considered the 1999 FEIS and its background documentation (including the 1995 FEIS for establishing a homeport for 1 Nimitz-Class CVN). Where a particular environmental resource is not discussed in this SEIS, the Navy determined there are no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts as discussed in the 1999 FEIS, or the issue was not raised during public scoping. In addition, construction of the proposed minor infrastructure upgrades will not impact those resource areas to any potentially significant extent. Therefore, per CEQ regulations (40 CFR 1502.15 and 40 CFR 1502.b), those other resource areas are not carried forward for further discussion in the impact analysis of proposed Berth LIMA infrastructure improvements.

For each of the 4 resource areas analyzed, the affected environment is described as a baseline against which the Proposed Action is evaluated to assess potential environmental effects. The level of detail used in each affected environment description is commensurate with the relative significance of any associated project impacts. In addition, the affected environment description for each resource area focuses on current conditions and any potentially significant changes in environmental conditions that have occurred since the 1999 FEIS. For a detailed description of those environmental conditions that have not changed appreciably since 1999, or for a more detailed introduction to specific attributes of each resource, the reader is referred to the appropriate sections in the 1999 FEIS. As a supplemental document, this SEIS avoids revisiting information from the 1999 FEIS that continues to be relevant.

4.1 AIR QUALITY

Section 3.10 of the 1999 FEIS provided a detailed description and background terminology for air quality conditions within the San Diego Air Basin (SDAB), which includes all of San Diego County. Air quality conditions addressed in that document included regulatory setting, meteorological conditions, and existing emission sources at NASNI. The 1999 FEIS summarized the best available data to characterize air quality conditions at the project site, and much of the background information remains applicable to current conditions in the project area.

Since the 1999 FEIS was written, the following substantial changes have occurred in the affected environment for air quality: (1) updated federal and state air quality standards; (2) updated attainment status relative to air quality standards; and (3) updated baseline monitoring data. Construction activities related to the upgrades to Berth LIMA were not addressed in the air quality analysis undertaken in the 1999 FEIS. Therefore, an analysis pursuant to the General Conformity Rule is presented in this section.

The EPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emission thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year) vary from pollutant to pollutant and are also subject to the severity of the nonattainment status. The applicable *de minimis* levels for the project area are listed in Table 4.1-1.

Table 4.1-1 Applicable Criteria Pollutant *de minimis* Levels (tons/year)

VOCs[1]	NO_x[1]	CO[2]	SO_2[2]	PM_{10}[2,3]	$PM_{2.5}$[2,3]
100	100	100	NA	NA	NA

Notes: [1] SDAB is a basic nonattainment area for the 8-hour federal and state O_3 standard; VOCs and NO_2 are precursors to the formation of O_3.
[2] SDAB is considered a maintenance area for the federal CO standard and is in attainment of the federal NO_2, SO_2, PM_{10} and $PM_{2.5}$ standards.
[3] SDAB is in nonattainment of the state PM_{10} and $PM_{2.5}$ standards.
NA = not applicable since the SDAB is in attainment of the federal SO_2, PM_{10} and $PM_{2.5}$ standards.
Sources: CARB 2008b; EPA 2008.

4.1.1 Affected Environment: Air Quality

4.1.1.1 Air Quality Standards

The EPA designates all areas of the U.S. according to their status of compliance with the NAAQS. Each area is designated as being in attainment of (air quality better than or equal to) or in nonattainment of (air quality worse than) the NAAQS. The criteria for assignment of a nonattainment designation vary by pollutant. An area is in nonattainment for Ozone (O_3) if the NAAQS have been exceeded more than 3 discontinuous times in 3 years, and an area is generally in nonattainment for any other pollutant if the NAAQS have been exceeded more than once per year. Former nonattainment areas that have met the NAAQS are designated as maintenance areas. State standards are also established by the CARB and are called the CAAQS. The CAAQS are at least as restrictive as the NAAQS and for certain pollutants include action thresholds that do not exist under national standards (CARB 2008a) (Figure 4.1-1). For example, the CAAQS have a 1-hour standard for O_3 while the NAAQS do not. Federal agencies such as the Navy are not required to comply with state standards. Although the Ambient Air Quality Standards for the federal O_3 standard has been recently updated (CARB 2008a), the area designations and attainment status information for the SDAB is based on the 1997 O_3 standards.

The SDAB is in basic nonattainment for the federal O_3 standard (VOCs and NO_x are precursors to the formation of O_3), is considered a maintenance area for the CO standard, and is in attainment of the federal NO_2, SO_2, PM_{10} and $PM_{2.5}$ standards. The SDAB is in nonattainment of the state O_3, PM_{10} and $PM_{2.5}$ standards (CARB 2008b; EPA 2008).

4.1.1.2 Air Quality Monitoring Data

An emission rate represents the mass of a pollutant released into the atmosphere by a given source over a specified period of time. Emission rates can vary considerably depending on type of source, time of day, and schedule of operation. The San Diego County Air Pollution Control District (SDCAPCD) periodically updates emissions for the entire SDAB for purposes of forecasting future emissions, analyzing emission control measures, and for use in regional air quality modeling. The largest regional sources of air emissions are on-road vehicles. The 2006 inventory determined that on-road vehicles emitted 35 percent of the VOCs, 59 percent of the NO_x, and 67 percent of the CO emissions within the SDAB (CARB 2008c). Another large source of VOCs is the use of surface coatings and solvents. Combustion sources produce both primary fine particulate matter and fine particulate precursor pollutants, such as NO_x, which react in the atmosphere to produce secondary fine particulates. Coarser particles mainly occur from soil-disturbing activities, such as construction, mining, agriculture, and vehicular road dust.

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS[1]	NATIONAL STANDARDS[2]	
			Primary	Secondary
Ozone (O_3)	8 Hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)	Same as Primary Standards
	1 Hour	0.09 ppm (180 μg/m^3)	•	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	•
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 μg/m^3)	0.053 ppm (100 μg/m^3)	Same as Primary Standard
	1 Hour	0.18 ppm (338 μg/m^3)	•	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	•	0.030 ppm (80 μg/m^3)	•
	24 Hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)	•
	3 Hour	•	•	0.5 ppm (1300 μg/m^3)
	1 Hour	0.25 ppm (655 μg/m^3)	•	•
Respirable Particulate Matter ≤ 10 Microns in Diameter (PM_{10})	Annual Arithmetic Mean	20 μg/m^3	•	Same as Primary Standards
	24 Hour	50 μg/m^3	150 μg/m^3	
Respirable Particulate Matter ≤ 2.5 Microns in Diameter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	15.0 μg/m^3	Same as Primary Standards
	24 Hour	No Separate Standard	35 μg/m^3	
Sulfates	24 Hour	25 μg/m^3	•	•
Lead (Pb)[3]	30 Day Average	1.5 μg/m^3	•	•
	Calendar Quarter	•	1.5 μg/m^3	Same as Primary Standard
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 μg/m^3)	•	•
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 μg/m^3)	•	•
Visibility Reducing Particles	8 Hour (10:00 A.M. to 6:00 P.M.)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with California Air Resources Board (CARB) Method V.	•	•

ppm – parts per million   μg/m^3 – micrograms per cubic meter   mg/m^3 – milligrams per cubic meter   • – no standard established

(1) CO, SO_2 (1- and 24-hour), NO_2, O_3, PM_{10}, and visibility reducing particles standards are not to be exceeded. All other California Standards are not to be equaled or exceeded.

(2) Not to be exceeded more than once a year except for annual standards.

(3) The federal standard for lead will be lowered from 1.5 μg/m^3 to 0.15 μg/m^3 effective January 12, 2009.

Source: CARB 2008a (updated 6/26/08).

Figure 4.1-1
California and National Ambient Air Quality Standards

Ambient air quality conditions in the San Diego area are monitored at many locations. Baseline air quality conditions in the vicinity of NASNI can be inferred from the most recent air quality measurements conducted at monitoring stations located in close proximity to NASNI (e.g., Beardsley Street Monitoring Station). Representative air quality data for NASNI for the most recent years for which data are available (2004-2006) are shown in Table 4.1-2.

The monitored, local air quality conditions near NASNI indicate that no exceedances of the NAAQS were recently recorded. Exceedances of the CAAQS occurred for PM_{10}.

Table 4.1-2 Representative Air Quality Data for NASNI (2004-2006)

Air Quality Indicator(1)	2004	2005	2006
Ozone(2)			
Peak 8-hour value (ppm)	-	0.063	0.070
Days above federal standard (0.075 ppm)	-	0	0
Carbon Monoxide(3)			
Peak 8-hour value (ppm)	3.60	3.89	3.50
Days above federal/state standard (9.0 ppm)	0	0	0
Particulate Matter Less than 10 microns in diameter(2)			
Peak 24-hour value ($\mu g/m^3$)	-	77.0	76.0
Days above federal standard (150 $\mu g/m^3$)	-	0	0
Days above state standard (50 $\mu g/m^3$)	-	5	1
Annual Average value (ppm)	-	37.0	33.6
Particulate Matter Less than 2.5 microns in diameter (2)			
Peak 24-hour value ($\mu g/m^3$)	-	44.1	63.3
Days above federal/state standard (35 $\mu g/m^3$)(4)	-	0	0
Annual Average value (ppm)	-	-	13.1
Sulfur Dioxide(2)			
Peak 24-hour value (ppm)	-	0.005	0.009
Days above federal standard (0.14 ppm)	-	0	0
Days above state standard (0.04 ppm)	-	0	0
Annual Average value (ppm)	-	0.003	0.004
Nitrogen Dioxide(2)			
Peak 1-hour value (ppm)	-	0.100	0.094
Days above state standard (0.18 ppm)	-	0	0
Annual Average value (ppm)	-	-	0.021

Source: CARB 2008d.

Notes: (1) The Ambient Air Quality Standards listed are based on the most recent standards available (CARB 2008a).
(2) Data from the San Diego (Beardsley Street) Monitoring Station.
(3) Data from the San Diego (Union Street) Monitoring Station.
(3) The previous federal/state standard during the representative reporting period (2004-2006) was 65 $\mu g/m^3$; therefore, the monitoring data indicates that the standard in effect at the time was not exceeded. The new $PM_{2.5}$ standards (35 $\mu g/m^3$) took effect in 2007.
- Indicates that no monitoring data was available for the year indicated.

The overall emissions inventory related to current CVN operations is expected to be below the 1999 FEIS baseline condition, primarily due to the following:

- The replacement of CV with CVN resulted in the elimination of the fuel oil-fired CV power plant emissions associated with the CV operations.

- The improvement of vehicular exhaust emissions due to various emission control measures, such as inspection and maintenance programs, clean fuel programs, etc., that have been implemented on both federal and state levels over recent years.

The emissions benefits of replacing CVs with CVNs are discussed in the 1999 FEIS.

4.1.2 Environmental Consequences of the CVN Infrastructure Improvements: Air Quality

4.1.2.1 Approach to Analysis

Under the General Conformity Rule, emissions associated with all construction activities from a proposed federal action, both direct and indirect, must be quantified and compared to annual *de minimis* (threshold) levels for those pollutants for which the project area is in nonattainment. Direct emissions are emissions of a criteria pollutant or its precursors that are caused or initiated by a federal action and occur at the same time and place as the action. Indirect emissions are emissions occurring later in time and/or further removed in distance from the action itself. Indirect emissions must be included in the determination if both of the following apply:

- The federal agency proposing the action can practicably control the emissions and has continuing program responsibility to maintain control.
- The emissions caused by the federal action are reasonably foreseeable.

Given the nature of the planned infrastructure upgrades at Berth LIMA, foreseeable emissions that the Navy can practicably control would essentially be limited to emissions resulting from on-site construction activities. Since the Navy cannot practicably control the project-induced vehicular trips to and from the project site beyond the base, off-base indirect vehicular emissions are not considered in this analysis. It should also be noted that, since lead emissions have been diminished greatly with the requirement that unleaded gasoline be used in automobiles, air quality impacts related to lead are not evaluated in this SEIS.

4.1.2.2 Significance Criteria

Air quality impacts would be significant if emissions during construction of the proposed infrastructure improvements would: 1) increase ambient air pollution concentrations above the NAAQS; 2) contribute to an existing violation of the NAAQS; 3) interfere with, or delay timely attainment of the NAAQS; or 4) impair visibility within federally-mandated Prevention of Significant Deterioration Class I areas.

4.1.2.3 Construction Assumptions

Air quality impacts from proposed construction activities at Berth LIMA would occur from the use of construction-related vehicles and equipment, paving operations, and construction contractor commute trips. Annual emissions from all construction activities were conservatively calculated by assuming that all construction activities would occur within 1 year (2009) and would consist of constructing a new fendering system, fitting of new bollards for mooring, construction of a CVN security building, construction of anti-terrorism/force protection facilities, and installation of various support facilities. Since the timing of the infrastructure may actually exceed one year, the assumption of all activities within one year is considered a worst case scenario for estimating impacts to air quality for compliance with the General Conformity Rule.

Estimates of construction equipment emissions were based on estimated hours of equipment use and the emission factors for each non-road source, as provided by the EPA. Emission factors related to delivery trucks and construction contractor commute trips were estimated using the CARB EMFAC2007 emission factor model. Equipment and vehicle operation hours were estimated primarily based on *2006 RS Means Heavy Construction Cost Data*. Detailed methodologies, equipment and workforce requirements, emission estimates, and references are provided in Appendix D.

4.1.2.4 Impact Analysis

Estimated construction emissions during the 12 months of construction are shown in Table 4.1-3. Estimated emissions associated with the infrastructure upgrades at Berth LIMA would be below the *de minimis* levels for conformity; therefore, no significant impacts to air quality would occur.

Table 4.1-3 Estimated Construction Emissions Resulting from Infrastructure Improvements at Berth LIMA

Emission Source	Pollutant (tons/year)		
	VOC[1]	**NO_x**[1]	**CO**[2]
Construction Equipment	0.82	9.11	4.16
Construction Motor Vehicles	0.14	1.42	1.19
Asphalt Paving	0.37	-	-
Total Emissions[3]	**1.33**	**10.53**	**5.35**
de minimis threshold	**100**	**100**	**100**
Exceeds *de minimis* threshold?	No	No	No
SDAB emissions forecast (2010)	54,969	58,437	274,955
Exceeds 10% of forecast?	No	No	No

Notes: [1] SDAB is a basic nonattainment area for the 8-hour federal and state O_3 standard; VOCs and NO_x are precursors to the formation of O_3.
[2] SDAB is considered a maintenance area for the federal CO standard and is in attainment of the federal NO_2, SO_2, PM_{10} and $PM_{2.5}$ standards.
[3] Total emissions are assumed to occur within one year, which represents a worst case scenario
* The SDAB is in attainment of the federal SO_2, PM_{10} and $PM_{2.5}$ standards; therefore, emissions estimates and *de minimis* thresholds are not applicable.
Sources: CARB 2008b; CARB 2008e; EPA 2008.

4.1.2.5 Conformity Applicability Analysis

The estimated emissions associated with the infrastructure improvements at Berth LIMA would be below the *de minimis* threshold levels for conformity. In addition, estimated emissions would not be regionally significant, as they would be substantially less than 10 percent of the VOC, NO_x, and CO emissions estimated for the SDAB (CARB 2008e). Therefore, implementation of the infrastructure improvements would conform to the SDAB SIP and would not trigger a conformity determination under Section 176(c) of the CAA. The Navy has prepared a Record of Non-Applicability (RONA) (refer to Appendix E) for CAA conformity in accordance with Navy CAA Conformity Guidance, OPNAVINST 5090.1C, Appendix F.

4.1.2.6 Significance Before Mitigation

Based upon the above analysis, no significant construction-related impacts to air quality would occur.

4.1.2.7 Mitigation

Because no significant construction-related impacts to air quality would occur as a result of implementation of the infrastructure upgrades at Berth LIMA, no mitigation measures are proposed or required.

4.1.2.8 Significance After Mitigation

No mitigation measures are proposed or required; therefore, no significant impacts would occur.

4.1.3 Environmental Consequences of the No Action Alternative: Air Quality

Under the No Action Alternative, air pollutant emissions associated with the construction of infrastructure improvements at Berth LIMA would not occur. In the near term, the existing air quality conditions described above in Section 4.1.1 would remain unchanged. However, the substandard berth infrastructure would be expected to continue to degrade at an increasing rate over time, resulting in an increase in the frequency and intensity of maintenance activities required to maintain operational capability. The air pollutant emissions associated with such maintenance activities would have an adverse but not significant impact on air quality.

4.2 NOISE

4.2.1 Affected Environment: Noise

Noise can be defined as any sound that interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Although exposure to very high noise levels can cause hearing loss, the principal human response to noise is annoyance. Human response to noise can vary according to the type and source of the noise, the distance between the source and the receptor, the perceived importance of the noise, its appropriateness in the setting, and the sensitivity of the receptor.

Noise levels are measured in dB, which are based on a logarithmic scale (e.g., a 10-dB increase corresponds to a 100 percent increase in perceived sound). Under most conditions, a change of 5 dB is required for humans to perceive a change in the noise environment (USEPA 1972). Common noises range from 30 dB for a quiet room to 100 dB for a loud power lawn mower at close range. Normal speech registers at approximately 60 dB. At a constant level of 70 dB, noise can be irritating and disruptive to speech; at louder levels, hearing losses can occur. A difference of 3 dB represents a doubling of sound level in terms of energy. However, because of the mechanics of human hearing, it is necessary to have a 10-dB increase to be *perceived* as a doubling in sound.

Noise measurements assessed relative to human exposure are usually expressed using an “A-weighted” scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the “A” to the unit of measurement (dBA) in order to identify that the measurement has been made with this filtering process. Human hearing ranges from approximately 20 dBA (the threshold of hearing) to 120 dBA (the threshold of pain).

When noise is generated spherically from a particular localized source (such as a construction site) it is referred to as a “point source.” Airborne noise from a point source attenuates (declines) over distance at a rate of 6 dBA for each doubling of distance between the noise receptor and the source. Thus, a noise level of 85 dBA at 50 feet would be measured as 79 dBA at 100 feet and 73 dBA at 200 feet from the source.

Because noise levels vary widely during the day, they are commonly averaged over a period of time. The term Day-Night Average Level (Ldn) is used to describe the average noise level during a 24-hour day with a penalty of 10 dBA added to nighttime sound levels (10:00 P.M. to 7:00 A.M.). The Community Noise Equivalent Level (CNEL) adds a 5 dBA penalty for noise events that occur in the evening (7:00 P.M. to 10:00 P.M.), as well as a 10 dBA penalty for noise events at night (10:00 P.M. to 7:00 A.M.). Shorter measurement durations (typically 1 hour) are described as Leq, indicating the total energy contained by the sound over a given sample period. The Leq for 1 hour is the energy average noise level during the hour; specifically, the average noise based on the energy content (acoustic energy) of the sound. It can be thought of as the level of a continuous noise that has the same energy content as the fluctuating noise level. The Leq for a 24-hour period is the Ldn / CNEL without the penalties. Time-averaged noise levels such as Ldn and CNEL are often used as the basis for land use compatibility guidelines.

Berth LIMA is located at the northeast side of NASNI in an industrial setting with a variety of existing point sources of noise. The primary on-site noise sources are typical of Navy installations and include vehicular traffic, ship engines, and a variety of mechanical equipment. Aircraft activity at the nearby airfield is also a major source of noise. The types of operations conducted at NASNI and the associated noise sources have not changed appreciably since the 1999 FEIS; consequently, current baseline noise conditions related to aircraft operations, ship traffic, and equipment use at Berth LIMA are essentially the same as those described in Section 3.11 of the 1999 FEIS. Noise contours generated in 2006 for a forthcoming Air Installation Compatible Use Zone (AICUZ) study update indicate that the Berth LIMA area continues to coincide with the 65 dBA level of average noise exposure (NAVFAC SW 2008a). In addition, the noise-sensitive land uses closest to the project site, both on and off base, have also remained the same. Due to baseline traffic growth over the past several years (see Section 3.3), the contribution to ambient noise conditions from off base vehicle traffic has likely increased.

Existing ambient (or background) noise levels, particularly in areas where sensitive noise receptors may be located (e.g., residences or schools), provide a useful reference point for the assessment of noise effects from a particular noise source. The most recent ambient noise measurements taken in the vicinity of NASNI are described in the *Final Traffic Noise Impact Technical Report* (CALTRANS 2007). In this study, short-term (12-15 minute) and long-term (24-hour) measurements were taken at a total of 14 and 10 locations, respectively. These measurement locations corresponded mainly to the residences adjacent to Third Street and Fourth Street, and several parks in the residential neighborhood. Noise levels in these areas are dominated by vehicle traffic along nearby roads rather than any noise generated on NASNI. The measured existing peak noise levels at the residences along main traffic routes range from 66 dBA to 78 dBA. These peak noise levels are considered typical for areas ranging from a busy daytime urban area to a typical commercial area.

4.2.2 Environmental Consequences of the CVN Infrastructure Improvements: Noise

4.2.2.1 Impact Analysis

During the course of proposed construction activities, short-term, intermittent noise impacts would occur in the immediate vicinity of the construction sites. Construction of the proposed facilities would require heavy equipment operations for grading, compacting, loading, unloading, placing materials, paving, and pile-driving. Equipment may include tractors, pile-drivers, loaders, forklifts, cranes, concrete pumps, rollers, and pavers. Diesel engine-driven trucks would bring materials to each site and remove the spoils from any required demolition or excavation.

Construction equipment noise levels vary widely as a function of the equipment used and the activity level, or duty cycle. Table 4.2-1 presents typical noise levels for various types of construction equipment, as measured at a distance of 50 feet from the source. The estimate of equipment noise that would be generated during the proposed construction phase operations was based on the calculations provided in *Highway Construction Noise: Measurement, Prediction and Mitigation*, 1976 (see noise impact analysis in Appendix F). Several pieces of construction equipment operating at the same time contribute to the actual noise levels at a specific receptor location. However, according to the logarithmic nature of noise measurement, the resulting noise levels would be dominated by the noisier source (e.g., 101 dB + 85 dB =

101 dB). As shown in Table 4.2-1, the impact pile driver (101 dB at 50 feet) would be the dominant noise source during the 1-year construction phase operations.

Construction noise is regulated under the City of Coronado Noise Abatement and Control Ordinance (Title 41, section 41.10.040). Construction is generally permitted within city limits between the hours of 7:00 A.M. and 7:00 P.M., but this restriction would not apply to on-base construction activities. Construction noise levels in the City of Coronado should not exceed an average of 75 dBA without the implementation of special construction precautions and sound barriers prior to construction (City of Coronado General Plan).

The closest noise sensitive receptors on base are the medical and dental clinics and the child care center located south of Stockdale Boulevard, between Rogers Road and Colorado Street. These locations are approximately 2,000 feet from the berth construction site. It is anticipated that the worst-case pile driving operations at the berth would result in a noise level at these locations of approximately 67 dBA (Appendix F). The closest off-base noise sensitive receptors are the residences located in the northern part of the City of Coronado near the intersection of Alameda Boulevard and First Street, which is about 1,804 feet southeast of the construction site. At this distance, the worst-case construction activity noise would be approximately 68 dBA.

Considering the dominance of aircraft noise and other existing noise sources (e.g., vehicular traffic noise) in the local environment, intermittent and short-term construction noise of the magnitude estimated above for the proposed construction activities would be negligible and would not appreciably alter the average baseline noise environment at noise-sensitive locations. In addition, construction activities would typically occur during normal working hours (i.e., between 7:00 A.M. and 5:00 P.M., Monday through Friday), thereby reducing the likelihood that construction noise would be an annoyance. Accordingly, noise impacts that would result from proposed construction activities would not be significant.

Table 4.2-1 Typical Construction Equipment Noise Levels (dBA at 50 Feet)

Equipment Type	Typical Noise Levels
Earthmoving:	
Loaders	85
Backhoes	80
Dozers	85
Scrapers	89
Graders	85
Truck	88
Pavers	89
Roller	74
Material Handling:	
Concrete Mixers	85
Concrete Pumps	82
Cranes	83
Derricks	88
Stationary:	
Pumps	76
Generators	81
Air Compressors	81
Impact:	
Pile Drivers (impact)	101
Pile Drivers (Sonic)	96
Jack Hammers	88
Pneumatic Tools	85
Other:	
Saws	76
Rock Drill	98

Source: Federal Transit Administration 2006.

4.2.2.2 Significance Before Mitigation

Based upon the above analysis, the proposed project is not expected to have a significant impact with regard to noise.

4.2.2.3 Mitigation

As the proposed project has no significant impacts, no mitigation measures are proposed at this time.

4.2.2.4 Significance After Mitigation

No significant impacts would occur, therefore, no mitigation measures are proposed.

4.2.3 Environmental Consequences of the No Action Alternative: Noise

Under the No Action Alternative, periodic construction noise associated with the proposed Berth LIMA infrastructure improvements would not occur. However, industrial and other noise-generating activities currently occurring in the area would continue, and the area's current noise environment would remain unchanged. No significant noise impacts would occur with implementation of the No Action Alternative.

4.3 BIOLOGICAL RESOURCES

This section describes biological communities in the project area along the NASNI shoreline and adjacent San Diego Bay that may be affected by the small amount of in-water construction (demolition of existing fenders and installation of a new fendering system) for the proposed project. Resources potentially affected by the proposed project would include biological communities such as plankton, eelgrass and algae, invertebrates, fishes, birds, marine mammals, and sea turtles, 3 of which are federally listed species under the Endangered Species Act (ESA). Additional topics include: Essential Fish Habitat (EFH), Special Aquatic Sites (SAS), and the Migratory Bird Treaty Act (MBTA). This section uses the best available data to adequately characterize biological resources at the project site, and to provide information on the additional topics mentioned above. Some information is provided for organisms studied in the south bay because these data are believed to be reasonably comparable to conditions in the project area.

Potential marine habitats at the project site include 1.5 acres of shallow waters of the U.S., consisting primarily of intertidal and shallow and mid-depth subtidal (10-20 feet) areas, and predominantly soft ocean bottom with artificial hard substrates created by pilings and other man-made structures. The intertidal area is backed by an almost vertical quaywall that is subject to boat wake and wave surge, and does not represent gradually sloping habitat (e.g., 15:1) that typically is utilized by foraging shorebirds. The typical range of intertidal habitats in the bay is 7.8 above to 3 feet below MLLW; the toe of the quaywall is at 1 foot above MLLW, thereby substantially reducing the actual intertidal range in this location (DON 1999).

4.3.1 Affected Environment: Biological Resources

4.3.1.1 Plankton

Plankton are free-floating or weakly swimming plants and animals that form the base of the marine food chain. It is expected that plankton assemblages in the project area are similar to other parts of San Diego Bay, as currents distribute these organisms throughout the bay. Based on extensive data collected from south San Diego Bay, dominant phytoplankton communities consist of pennate (oval-shaped) and chain-forming diatoms such as those of the genera *Pleurosigma* and *Gyrosigma*, and dinoflagellates such as *Gymnodinium* spp. (DON and San Diego Unified Port District [SDUPD] 2000). Phytoplankton are a primary food source for various species of marine mollusks and fishes throughout the bay.

The most common types of zooplankton found in the San Diego Bay include calanoid and harpacticoid copepods, which are microscopic crustaceans (DON and SDUPD 2000). Larvae of numerous invertebrates are carried by currents into the area and represent an additional food source for local adult fishes and invertebrates. As described above for phytoplankton, the majority of zooplankton studies have been conducted in south San Diego Bay.

Other plankton assemblages include fish eggs and larvae (ichthyoplankton). Patterns in local distributions of ichthyoplankton species in the south bay included eggs of the deepbody anchovy (*Anchoa compressa*) and diamond turbot (*Hypsopsetta guttulata*) as the most commonly collected organisms.

4.3.1.2 Eelgrass and Algae

Eelgrass (*Zostera marina*) is a valuable resource in southern California bays and estuaries (DON and SDUPD 2000). Eelgrass provides refuge for numerous species of algae, invertebrates, and fishes, as well as nursery habitat for juvenile fishes. Eelgrass may provide limited foraging habitat for the endangered California least tern, amongst other open-water habitats (DON and SDUPD 2000). Eelgrass is found at water depths of 0 to 24 feet in the north and north-central bay, and 0 to 13 feet in the south and south-central bay. The majority of eelgrass occurring in the bay is located in the south and south-central regions (DON 2007).

No eelgrass occurs in the project area, and the depth distribution of eelgrass is deeper than the location of the project area. Eelgrass does occur approximately 0.5 mile to the east (DON 2007).

Algae are important photosynthetic plants that provide food and refuge to other marine organisms. Macroalgae are found in greater abundance in rocky habitats, but several common algal species are found on soft bottom habitats in San Diego Bay. These include mats of the red algae *Gracilaria verrucosa* (DON 1992) and green algae such as *Ulva* spp., *Chaetomorpha* spp., *Cladophora* spp., and *Enteromorpha* spp. (DON and SDUPD 2000). Descriptions of epibenthic (attached subtidal) algae near the proposed site are based on qualitative observations made during the eelgrass surveys. The most common species were the red alga *G. verrucosa* and the non-native brown alga *Sargassum muticum*. *S. muticum* was commonly found on hard substrate along the side of the turning basin. No macroalgae were common along the soft-bottom transects surveyed during November 1997 (DON 1999).

4.3.1.3 Invertebrates

Invertebrates are important components of marine ecosystems that represent a food source for many fishes and birds. Invertebrates consist of infauna (organisms living in the sediments) and epifauna (organisms living on the sediments). Infaunal communities at the project site are likely similar to other parts of north and north-central San Diego Bay because of the similarity of sediment types and depths, and distribution of the larvae of these organisms throughout the bay. The dominant infaunal taxa in the bay are polychaete and oligochaete worms, similar to other soft-bottom areas in southern California (DON 2007).

Over 80 epifaunal invertebrates were observed near the project site as part of eelgrass surveys conducted by the DON. The most common epifauna were mollusks, including the Japanese mussel *Musculista senhousii*, cnidarians (hydroids and sea anemones), arthropods (barnacles, shrimp, and crabs), and members of the phylum porifera (sponges). The Japanese mussel, a highly invasive non-native species that was accidentally introduced in the 1960s (DON and SDUPD 2000), is commonly found on muddy bottom habitats throughout San Diego Bay. This species occurs in similar densities at the proposed site as in other parts of the bay, although these mussels typically are absent from areas dominated by eelgrass. Other common epifauna observed near the proposed site include the glass palm hydroid (*Corymorpha* *palma*), mud tube anemone (*Pachycerianthus fimbriatus*), western mud whelk (*Nassarius tegula*), and bubble snail (*Bulla gouldiana)* (DON 1999).

4.3.1.4 Fishes and Essential Fish Habitat

Numerous surveys have been conducted over the last few decades in the San Diego Bay region to quantify fish diversity and abundance, with the most comprehensive being recent surveys by Allen (2002) and the Vantuna Research Group (2005). Survey results indicate that there are at least 89 species of benthic (bottom living) and pelagic (living in the water column) fishes known to occur in the entire San Diego Bay. Overall diversity of fish species was greatest in the north-central bay area, which is the bay region encompassing the project area. The most common pelagic species known to occur in the north-central bay include deepbody anchovy (*Anchoa compressa*), topsmelt (*Atherinops affinis*), shiner perch (*Cymatogaster aggregata*), and slough anchovy (*Anchoa delicatissima*). Common benthic species found in the north-central region include the round sting ray (*Urolophus halleri*) and bat ray (*Myliobatis californica*) (Vantuna Research Group 2005).

Pursuant to the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801-1882), the Pacific Fishery Management Council (PFMC) developed Fishery Management Plans (FMPs) and identified EFH for commercially and recreationally harvested species. EFH is defined as "…those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the NMFS on any action that would adversely affect EFH.

EFH has been identified in the FMPs for 2 groups of managed species: coastal pelagic species and west coast groundfish (PFMC 1998, 2006, 2007). Coastal pelagic species include 5 species, of which 3 may be found in the project area (Northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), and Pacific mackerel (*Scomber japonicus*)). Corresponding EFH includes the coastal and offshore waters throughout the U.S. Exclusive Economic Zone (EEZ) to 200 nautical miles offshore where sea surface temperatures range from 50°-79°F. EFH for west coast groundfish includes the entire west coast of the U.S. out to depths of 11,483 feet. The west coast groundfish species complex includes 82 species of bottom-dwelling fishes that occur in diverse habitats. Very few of these species are known to occur in the San Diego Bay, and the 4 species that are likely to occur in the proposed project area are the curlfin sole (*Pleuronichthys decurrens*), English sole (*Pleuronichthys vetulus*), California scorpionfish (*Scorpaena guttata*), and leopard shark (*Triakis semifasciata* [Vantuna Research Group 2005]).

EFH that is considered to be particularly important to the long-term productivity of populations of 1 or more managed species or to be particularly vulnerable to degradation are identified by NMFS as Habitat Areas of Particular Concern (HAPC) (PFMC 2006). For types or areas of EFH to be considered HAPC, the following must be demonstrated: 1) the importance of the ecological function provided by the habitat, 2) the extent to which the habitat is sensitive to human-induced environmental degradation, 3) whether, and to what extent, development activities are or will be stressing the habitat type, and 4) the rarity of the habitat type. No HAPCs have been designated for coastal pelagic species. The FMP for west coast groundfish identifies 5 HAPCs: estuaries, canopy kelp, seagrass (both eelgrass and surfgrass [*Phyllospadix* spp.]) rocky reefs, and other areas of interest (seamounts in waters off the California coast) (PFMC 2006). No HAPCs occur in the project area. Although eelgrass beds are present in San Diego Bay, the specific project area does not include eelgrass.

4.3.1.5 Birds

The open waters and shorelines of San Diego Bay provide important foraging and roosting habitats for migratory, wintering, and resident-breeding marine birds, including shorebirds, seabirds, waterfowl, wading and diving birds, generalist waterbirds (e.g., gulls), and raptors. The structures and shallow water habitat along the northeastern shoreline of North Island are heavily used by waterbirds and seabirds, representing some of the primary use areas for many species that occur in northern San Diego Bay. The piers and structures are used for resting, while the intertidal and shallow water areas provide foraging and on-water resting habitat (DON and SDUPD 2000). For most species, the site is expected to receive a low-to-medium frequency of use as resting or foraging habitat (DON and SDUPD 2000), since the intertidal area backed by the quaywall in the immediate project region is generally too steep to support shorebird foraging.

Birds found in the project area with the exception of non-native species are protected by the MBTA of 1918, which prohibits the taking, killing, or possessing of migratory birds or the parts, nests, or eggs of such birds, unless permitted by regulation. Migratory bird conservation relative to non-military readiness activities is addressed in an Memorandum of Understanding (MOU) developed in accordance with Executive Order 13186, signed January 10, 2001. "Responsibilities of Federal Agencies to Protect Migratory Birds" is the title of the MOU between the DOD and USFWS that was signed on July 31, 2006. The conservation of migratory birds is also addressed by the Navy for all activities occurring at NASNI (DON and SDUPD 2000). Surveys examining waterbird occurrence in the north and central San Diego Bay area were conducted in 1993 and in 2006-2007. Species occurrences varied greatly spatially and were strongly tied to the substrate type present. For example, in the north bay many species were present in areas of bait barges (DON 1994).

Federally listed birds that occur in the proposed action area are discussed in Section 4.3.1.7, Threatened and Endangered Species.

4.3.1.6 Marine Mammals

Marine mammals are protected from "taking" under the Federal Marine Mammal Protection Act (MMPA) of 1972 as amended (16 USC 1431 et seq.). Taking is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal". An action that results in any change in behavior attributable to human activity may be considered a "take by harassment," depending on the circumstances. Marine mammals known to regularly occur in San Diego Bay include the harbor seal (*Phoca vitulina richardsi*), California sea lion (*Zalophus californianus* c.), and bottlenose dolphin (*Tursiops truncates*). The California gray whale (*Eschrichtius robustus*) only occurs off of San Diego during its winter (December-March) migration period, and during that time may occasionally enter the mouth of San Diego Bay (DON and SDUPD 2000).

Individuals of the California stock of harbor seal frequent nearshore coastal and estuarine waters along the entire coast, with hundreds of haul-out sites occurring along coasts of the mainland and islands. Population sizes are difficult to estimate due to the occurrence of some animals away from haul-out sites at any given time, but there is no current concern for this species (Caretta et al. 2007). In the project area, this species is found occasionally, likely feeding on fish or octopus found in the bay waters (DON and SDUPD 2000).

California sea lions are found along the entire west coast of the U.S. This species is known to haul-out on many different structures, including buoys found in harbors and bays. Similar to harbor seals, because of the occurrence of animals at and away from haul-out sites, population sizes are difficult to estimate, but there is no current concern for this species (Caretta et al. 2007). This species is found frequently in San Diego Bay and is expected to occur in the project area.

Dolphins found in southern California are highly transient organisms. The species that occurs commonly in San Diego Bay is the coastal population of bottlenose dolphin. This species is found within 820 feet of shore most (90 percent) of the time, and is known to have low site fidelity; individuals ranging from Santa Barbara south to Baja California, Mexico are also commonly sighted in San Diego. Current population estimates indicate that populations have been stable for at least the past 20 years, and there is no current concern for the status of this species (Caretta et al. 2007). Population estimates derived from counts of migrating individuals have varied in recent years, and the variability may be due to this species reaching its carrying capacity (Caretta et al. 2007). Dolphins are expected to occur in the project area on occasion.

The California gray whale is a migratory animal that is found transiting the coast of California during its winter migration to and from calving areas in southern Baja California, Mexico. Individuals of this species are occasionally sighted inside the mouth of San Diego Bay, but typically they are found just offshore in and outside of the kelp line. This species is not expected in the project area.

4.3.1.7 Threatened and Endangered Species

Threatened or endangered species that are known or likely to occur in the project area include the California brown pelican, California least tern, and green sea turtle. Recent regulatory changes have occurred for several of these species, and these changes and basic information for each species are described in detail in the following text.

The California brown pelican is federally endangered but was proposed for delisting in February 2008. This species is found in many areas of North, Central, and South America, with a distinct population that spans the Southern California Bight (SCB) and Mexico. The SCB population was extremely depleted during the 1960s and early 1970s with reproductive success deemed to be near zero. Since this time populations have recovered, and the species has accordingly been proposed for delisting by the USFWS (2008). California brown pelicans can be found roosting or loafing in the project area.

The California least tern is a state and federal endangered species found in coastal bays, estuaries and lagoons. Threats to this species have included displacement of individuals from nesting sites, and more recently, loss of individuals due to predation (DON 2007). The San Diego Bay population, including nesting colonies on Naval Base Coronado, has been well-studied and monitored. Over the past 3 decades, the range-wide population, including the bay population has continued to increase and is substantially larger than in previous years. Population increases in part reflect successful Navy management of nesting and foraging habitat. Regulations for in-water construction have been detailed in a 2004 MOU with USFWS, which includes seasons in which the Navy can conduct in-water projects to avoid adverse impacts to California least tern populations (DON 2007). The California least tern can be found foraging in the project area.

The green sea turtle is federally threatened throughout its eastern North-Pacific range, and a small population resides in San Diego Bay. This species prefers warmer waters, so in the relatively cool waters off San Diego it is often found in the south bay near the thermal discharge plant. A cooperative effort to monitor green sea turtle presence acoustically in the bay between the Navy, NMFS, and the Port of San Diego is ongoing. Green sea turtles are tagged with hydrophone tags by NMFS personnel, and detected acoustically by hydrophones placed in various locations around the bay. Although previously thought to be restricted to the south bay, 5 individual green sea turtles have been detected at NAB Coronado, which is 3 miles from NASNI. Due to the geographic limitations of the study, it is reasonable to assume that green sea turtles may occur in the project area (DON 2008a). One visual sighting of a green sea turtle within the project area has been confirmed.

4.3.1.8 Special Aquatic Sites (SAS)

Under Section 404(b)(1) of the Clean Water Act (CWA), the discharge of dredged or fill material to a SAS is not allowable unless there is no practicable alternative (40 CFR § 230.10). SAS are recognized as those that significantly influence or positively contribute to the general overall environmental health or vitality of the entire ecosystem of a region, and include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. No SAS occur within the project area footprint.

4.3.2 Environmental Consequences of the CVN Infrastructure Improvements: Biological Resources

4.3.2.1 Significance Criteria

The proposed construction activities at Berth LIMA would be considered to have a significant impact on biological resources if they were to result in long-term or otherwise extensive adverse impacts to species or habitats that are legally protected. Relevant statutory and regulatory protections include the ESA (protects listed species and their critical habitats); MMPA (protects all marine mammals); CWA (protects the Nation's waters, including, SAS such as wetlands, mudflats and vegetated shallows (including eelgrass); Magnuson-Stevens Fishery Conservation and Management Act (protects EFH); and the MBTA and Executive Order 13186 (protect migratory birds and their habitats). Temporary impacts of limited extent would not normally be considered significant, provided applicable regulatory requirements are satisfied.

4.3.2.2 Impact Analysis

The following is an analysis of potential impacts to biological resources from the construction necessary within the project area, grouped by resource type. Analyses of impacts to resources as defined by the ESA, MBTA, and MMPA are included for each applicable resource. Where appropriate, impacts from sound created by pile driving activities are discussed. Specifications for the pile driving activity have not been determined, but the typical aboveground sound pressure level (SPL) of 101 dBA at 50 feet provided in the preceding section translates to an estimated underwater SPL of approximately 163 dB re- 1 micropascal (µPa) at the same distance from the source, which is within the range estimated for other small- to mid-size pile drivers (e.g., NMFS 2006; DON 2008b). Silt curtains would be used during all pile driving activities to minimize movement of suspended sediments and slightly decrease noise levels. Pile driving activities are expected to be completed within approximately 30 days, although efforts would be made to complete this activity in the shortest time possible. The NMFS has identified sound levels that may cause harm to various animals, and this information is incorporated into the analysis of the resource types for which this information exists, below.

<u>Plankton</u>

Plankton communities in the project area would temporarily be disturbed by the suspension of sediments resulting from in-water construction. Phytoplankton communities could be distressed due to a decrease in light levels from suspended sediments. As the resuspension of sediments would occur only for the project duration, and plankton populations are dynamic and constantly replenished, impacts from the proposed project would be temporary and localized to the north/central area of the San Diego Bay.

Eelgrass and Algae

As no eelgrass occurs in the project area, there would be no impacts to eelgrass. Algal mats are present in this habitat, either loosely buried and anchored in the sediment or drifting along the bottom (DON and SDUPD 2000), and may be temporarily dislodged or redistributed by the activities to remove and replace fender pilings. Algal mats would be expected to drift back into the area as a result of normal tidal and current circulation within a few hours to days, with no persistent effects on the community of associated organisms (DON and SDUPD 2000). The small project area and short project duration would lead to only temporary and minimal impacts to marine algae.

Invertebrates

Marine invertebrates occurring in the project area may be displaced during in-water construction activities. Mobile invertebrates would likely leave the area, whereas sedentary and infaunal (living in the sediments) invertebrates could be harmed during in-water construction activities. Soft bottom sediments that support invertebrates in the project area are found throughout the bay, so those organisms that are mobile could move to nearby areas of comparable habitat. As new recruitment would replenish invertebrate populations post-construction (DON and SDUPD 2000), negative impacts to invertebrates would be temporary and localized.

Fishes and Essential Fish Habitat

Continuing construction activity would result in noise and localized turbidity that would likely cause fish to disperse away from the area. Noise from pile driving would not be at levels determined by NMFS to harm fish hearing (> 180 dB) more than about 10 feet away from where the pile is being driven (NMFS 2008). Sound levels would decline to ambient levels (120 dB) within approximately 150 feet from pile driving activities. Results of a recent study on 3 diverse species of fish determined that the 180 dB threshold level identified by NMFS was found to be very conservative, as harm to fish only occurred at markedly higher sound exposure levels (Popper et al. 2006). This is the most recent, rigorous evaluation of injury thresholds applicable to fish exposed to pile driving; other evidence is largely anecdotal (Popper 2008). Thus, due to the mobility of these organisms and temporary, localized nature of disturbance, impacts to fish would be temporary and minimal.

EFH for West Coast Groundfish and Coastal Pelagic Species is broadly identified along the entire coast of California, and includes the project area. Construction would take place in groundfish and pelagic EFH habitats near NASNI. EFH for the species included in the FMPs associated with the EFH areas of concern includes all life stages of the species, leading to a broad range of EFH and HAPC habitat types. FMP species are found very rarely in the project area, but some have been collected during surveys. The most common FMP species found in the north-central region of the bay (near the project area) are highly transient and found bay-wide. Due to the rare occurrence of these FMP species in the north-central region where the project activities would take place and their transient nature, construction activities would not have any significant or long-term affect on these FMP species.

While the proposed renovations would not increase the size of the current footprint of the berth, there would be a change in the soft-bottom habitat directly below the berth. Fender pilings with armor stone between them would be installed, resulting in a change in use of a small area of the soft sand bottom below the pier. Considering the dynamic physical oceanographic conditions (currents and waves leading to sand movement) that dominate the area, conditions would return to pre-construction relatively quickly, with the exception of the small areas changed by the actual presence of piles. Impacts during pile driving would result in turbidity plumes and underwater noise, which may temporarily disturb FMP species. Indirect impacts to EFH could include effects from degradation of water quality as a result of suspended sediments, reduction of light penetration and interfering with filter-feeding benthic organisms sensitive to turbidity. However, the level of increase in turbidity would be extremely short-term, limited only to the time period of the fender pile installation.

The placement of fender piles with armor stone between them would introduce an artificial hard structure that opportunistic benthic species could colonize. This would create benefits that would offset any potential short-term, localized impacts. Minor changes in species associated with softer sediments could also occur around pilings (Hiscock et al. 2002). Fishes and invertebrates would likely be attracted to the newly formed habitat complex, and the abundance of seafloor organisms in the immediate vicinity of pilings is likely to be higher than in surrounding areas away from the structures. The overall change in habitat could result in changes in local community assemblages. Since the pilings needed to install the fendering system would represent only a small amount of artificial habitat, there would likely be little effect to the overall populations of seafloor biota.

In summary, activities associated with the proposed project will adversely affect EFH, but these effects are expected to be short term/temporary and localized, and adequately offset pursuant to the Magnuson-Stevens Act as determined in consultation with the NMFS. Therefore, they would not be significant under NEPA. A detailed EFH Assessment is provided in Appendix G, and correspondence from NMFS in which they concur with this finding, is included in Appendix M.

<u>Birds</u>

Seabirds and waterbirds occur in large numbers in the project area. Noise from construction activities may disturb birds for the duration of these activities, but no destruction of bird habitat or nests would take place. Additionally, there would be no impacts to any migratory birds as it is defined by the MBTA. Birds are highly mobile, and as construction activities involve slowly moving vessels and vehicles, birds would avoid the area if disturbed. Potential impacts to listed bird species are discussed below.

<u>Marine Mammals</u>

Marine mammals would not be impacted by the proposed project as defined by the MMPA. Marine mammals that are occasionally found in the proposed project area, those in the immediate vicinity of in-water construction activities, could be temporarily displaced by noise associated with pile driving activities. Pile driving activities would result in underwater noise levels less than that determined by NMFS to cause harm to pinnipeds or cetaceans (190 dB for pinnipeds and 180 dB for cetaceans [68 FR 64595]). Marine mammals are highly mobile organisms, and therefore, if disturbed by pile driving or vessel traffic would likely leave the area. To avoid or minimize potential effects to marine mammals, construction staff would be informed in writing of the possibility of such occurrences and the general appearance of the species. Upon detection of a marine mammal within 100 feet of the active construction site, staff would temporarily suspend activities until the animal moves to a distance of at least 100 feet from the construction area. Given the anticipated low levels of disturbance, limited abundance of these animals in the project region, and implementation of preventative measures, project activities would not adversely affect or result in takes of marine mammals. NMFS has reviewed these findings and provided correspondence, included in Appendix M, requesting that the Navy use the contacts provided in unlikely event a take occurs during construction.

<u>Threatened and Endangered Species</u>

Federally listed birds known to occur in or near the project area include the California brown pelican and California least tern. Like other nearshore seabirds, the California brown pelican and California least tern are highly mobile, and if disturbed may leave the area. Since the California brown pelican can occur in the project area, it may be affected but not adversely affected by the minor infrastructure improvements proposed at Berth LIMA. The Navy has received written concurrence from USFWS on this determination for California brown pelican (Appendix M). Regarding the California least tern, the proposed project site is not located within an area of California least tern nesting or high to very high use foraging habitat as described in the MOU between the Navy and USFWS (DON 2004). The closest included foraging habitat is located approximately 1.9 miles southeast of the proposed project area. Therefore, project construction activities would not be subject to seasonal limitations on in-water construction that the Navy and USFWS have agreed upon in their MOU to protect California least tern foraging habitat (DON 2004). No nesting habitat would be impacted, and relatively distant noise from construction activities is unlikely to disturb birds during nesting or foraging activities. Therefore, due to the mobile nature of this species and the absence of nesting or high use foraging areas near the project area, the proposed activities may affect but are not likely to adversely affect California least tern. The Navy has received written concurrence from USFWS on this determination (Appendix M).

Green sea turtles are highly mobile organisms, and if transiting through the bay, they would likely avoid the project area. There have been limited studies on green sea turtle hearing capabilities, but the available data show that green sea turtles can only hear moderately low frequency sounds, and have relatively low sensitivity within the range they are capable of hearing (Bartol et al. 1999; Ketten and Bartol 1995). Pile driving and other construction activities would probably deter green sea turtles from closely approaching the work area, and as a result, the likelihood that a green sea turtle would get close enough to experience any effects is remote. To avoid or minimize potential effects to green sea turtles, construction staff will be trained to detect and monitor movements of green sea turtles. Upon the sighting of a green sea turtle within 100 feet of the active construction site, staff would suspend activities until the animal moved to a distance of at least 100 feet from the construction area. Additionally, the Navy will continue to monitor tagged green sea turtles for presence and distribution throughout the bay for the remainder of the construction project period (January 2009) as part of the joint Navy-Port of San Diego-NMFS efforts to detect green sea turtles in the San Diego Bay using hydrophone gates and acoustic tags (NAVFAC SW 2008a). The Navy/Port study has documented 36 acoustic tag detections of 5 tagged green sea turtles south of Naval Amphibious Base since December 2007. One visual sighting of a green sea turtle within the project area has since been confirmed. The Navy has been in informal consultation with the NOAA since the beginning of the green sea turtle study. Interim findings indicate that green sea turtles do move randomly though the southern part of San Diego Bay and may loaf and forage as far north as the project site. Therefore, the Navy along with the USACE have revised their ESA findings from “no effect” to “may affect” for the P-704 project at Berth LIMA at NASNI based on the potential rare occurrence of this species in the project area. To preclude adverse affect, the Navy will employ avoidance and minimization measures including, performance of a visual sweep of the project area, or of a 100-foot radius (whichever is greater) prior to commencing pile driving activities, and after a break in pile driving for more than 30 minutes. If green sea turtles are seen within this visual range, the Navy will not commence pile driving activities until 15 minutes has passed since the last such sighting, or the animal has moved out of the established range. If a green sea turtle moves within this established range while pile driving activities are occurring, such activities can continue without interruption. Prior to the start of pile driving each day, after each break of more than 30 minutes, and if any increase in the intensity is required, the Navy will use a ramp-up procedure. This procedure involves a slow increase in the pile driving to allow any undetected animals in the area to voluntarily depart. The Navy, in consultation with NOAA has determined through informal consultation that this will prevent adverse effects on this species. The Navy has received written concurrence from NOAA on the finding of “may affect, not likely to adversely affect” green sea turtle (Appendix M).

Special Aquatic Sites (SAS)

No SAS (in effect, eelgrass) occur within the project area. Therefore, there would be no impacts to SAS.

4.3.2.3 Significance Before Mitigation

Based upon the above analysis, the proposed infrastructure improvements are not expected to result in any significant impacts to biological resources.

4.3.2.4 Mitigation

Although implementation and operation of the proposed infrastructure improvements at Berth LIMA are not expected to result in significant impacts to biological resources, the following mitigation measures will be implemented to avoid or minimize potential effects to marine mammals and green sea turtles:

- Construction staff would be informed in writing of the potential occurrence of marine mammals and the general appearance of the relevant species. Upon detection of a marine mammal within 100 feet of the active construction site, staff would temporarily suspend activities until the animal moved to a distance of at least 100 feet from the construction area.
- Construction staff will be trained to detect and monitor movements of green sea turtles. Upon the sighting of a green sea turtle within 100 feet of the active construction site, staff would suspend activities until the animal moved to a distance of at least 100 feet from the construction area.
- The Navy will continue to monitor tagged green sea turtles for presence and distribution throughout the bay for the remainder of the construction project period (January 2009) as part of the joint Navy-Port of San Diego-NMFS efforts to detect green turtles in the San Diego Bay using hydrophone gates and acoustic tags (NAVFAC SW 2008a).

4.3.2.5 Significance After Mitigation

Based upon the above analysis, the proposed project is not expected to have a significant impact on biological resources.

4.3.3 Environmental Consequences of the No Action Alternative: Biological Resources

Under the No Action Alternative, the affected biological environment as described above would remain unchanged. No impacts to biological resources would occur as a result of the No Action Alternative.

4.4 MARINE WATER RESOURCES

Beneficial uses and specific water quality objectives for San Diego Bay are described in the Basin Plan, prepared by the Regional Water Quality Control Board (RWQCB), San Diego Region (RWQCB 1998). The Basin Plan lists 12 beneficial uses: (1) industrial service supply; (2) navigation; (3) water-contact recreation; (4) non-water-contact recreation; (5) commercial/sport fishing; (6) preservation of biological habitats of special significance; (7) estuarine habitat; (8) wildlife habitat; (9) rare, threatened, or endangered species; (10) marine habitat; (11) migration of aquatic organisms; and (12) shellfish harvesting. The Basin Plan specifies numerical water quality objectives for a limited set of water quality parameters (e.g., nutrients, bacteria, and pH) and descriptive criteria for other parameters including floating material, oil and grease, pesticides, radioactivity, suspended and settleable solids, sediment, taste and odor, temperature, toxicity, toxic pollutants, and turbidity. In most cases, these descriptive criteria prohibit harm or adverse impacts to the beneficial uses.

4.4.1 Affected Environment: Marine Water Resources

4.4.1.1 Bathymetry

DON conducted a bathymetric survey at the project site in August 2005 to document water depths in the vicinity of the quaywall (Fugro Pelagos 2006). The depth along the quaywall is approximately 35 feet below MLLW and slopes downward to the depth of the NASNI Turning Basin, which is approximately 50 feet below MLLW. The bay bottom near the quaywall was scoured in 2 areas; possibly as a result of propwash from tugs and DON vessels, and was approximately 10 to 15 feet deeper than the surrounding bay floor. However, these 2 areas subsequently were filled in with quarry run and crushed concrete to the same depth as the base of the quaywall. No other unusual topographic features occur in the area.

4.4.1.2 Water Currents and Circulation

Circulation patterns in the central portion of San Diego Bay are primarily influenced by tides. Tidal currents typically are stronger than wind or wave-induced currents, except during periods of relatively strong winds (SDUPD 1980). Tides within the bay are mixed, semi-diurnal (2 high and 2 low tides per day), with an average and maximum tidal range of 5.6 feet and 9.8 feet, respectively. The volume of water exchanged during a tidal cycle is approximately 1/3 of the volume of the entire bay. The period in which water is within the bay varies from 1 tidal cycle near the mouth to over 1 month in the south bay (Largier 1995).

Water currents in the main channel offshore from the project site flow at a speed of approximately 0.4 knots. Relatively slower currents typically occur near shore in shallower areas outside of the main channel, although diver-conducted studies adjacent to the project area (east, in the vicinity of Pier J/K) reported currents of 1-2 knots. George and Largier (1995) estimated that waters within the main channel in the vicinity of the Coronado Bridge might move distances up to 2.8 miles during 1 tidal cycle, with good mixing within this portion of the bay.

Hammond and Wallace (1982) described patterns in bottom water movement within the central and southern portions of the bay. Northward flowing bottom waters from south bay meet southward flowing bottom waters from the bay mouth (north bay) within an area of the central bay between Glorietta Bay and Silver Gate Power Plant, located on the eastern shoreline of the bay across from the entrance to Glorietta Bay near the Coronado Bridge. This convergence promotes settling and deposition of particles suspended in bottom waters. Results from this study also identified minimal horizontal exchange between bottom waters within semi-enclosed docking basins where large and small vessels are moored and those in the main channel. These conditions restrict transport of suspended sediments out of the immediate areas of the docking basins.

Waves within the bay typically are generated by local winds, and are generally less than 2 to 3 feet in height (SDUPD 1980). The project area is well protected from waves generated by predominant northwest winds.

4.4.1.3 Marine Water Quality

Water quality conditions within San Diego Bay are influenced by circulation patterns, flushing or exchange of bay and ocean waters, and the duration of the flushing cycle or water residence times. Water quality conditions in San Diego Bay vary between the northern and southern portions of the bay due to differences in the influences of mixing with ocean waters. Freshwater inputs to the bay are minimal, except during periods of heavy rainfall, and conditions rapidly return to pre-storm levels after the rain event. Processes affecting marine water quality at the proposed project site, such as circulation and exchange of bay and ocean waters, are not substantially different from processes affecting water quality in other portions of the central bay. Thus, because water quality parameters have not been measured within the immediate vicinity of the project site, the water quality conditions are characterized using existing information from adjacent areas of the bay.

Temperature/Salinity

Water temperatures in the bay range from approximately 57.2 °F to 80.6°F, and salinities (salt content) can range from 31 to 39 parts per thousand (ppt) (DON 1992). Higher water temperatures and slightly higher salinities occur in summer than in winter, particularly due to seasonal differences in evaporation, heating, and freshwater inputs to the south bay. A smaller range in temperature and salinity conditions occurs at the project site because mixing of bay and ocean waters moderates the effects of these processes. Differences with depth in temperature and salinity conditions are minimal in the central bay (Largier 1995).

Dissolved Oxygen

Dissolved oxygen concentrations within San Diego Bay waters typically range from 5 to 10 milligrams per liter (mg/L). Depth-related differences in dissolved oxygen concentrations are minimal in the central bay (DON 1995).

Water Clarity/Turbidity

Present water clarity (Secchi depths) in the bay averages 7.8 feet (DON 1992). Relatively higher turbidity levels occur within shallow areas of the bay due to resuspension of bottom sediments. Seasonal decreases in water clarity may accompany stormwater runoff (particularly in the vicinity of storm drains), or plankton blooms (large growth periods). However, these are typically single-event, short-term conditions.

Chemical Contaminants

In May 2008, the Navy obtained permit approval from the USACE and RWQCB to begin repair of the quaywall immediately east of the proposed improvements at Berth LIMA. The repairs to the quaywall will involve dredging of up to 49,000 cubic yards (cy). Of the maximum 49,000 cy, no more than 47,200 cy would be placed at the designated ocean disposal site (LA-5). The remaining 1,800 cy consists of fill material (river run) placed previously and will be reused and not disposed of at LA-5. As part of the permit application process, the Navy tested sediment quality within the proposed quaywall repair project dredge footprint. The results of this recent sediment quality testing are relevant to the existing conditions of Bay bottom that would be disturbed by piles driven into the sediment as part of the proposed infrastructure improvements to Berth LIMA.

For purposes of testing, the quaywall dredging area was divided into 2 dredging units, corresponding to the upper and lower strata of sediments within the dredging footprint. Sediments were collected at 7 locations, and the upper and lower strata were composited and tested separately. Sediments in both upper and lower strata contained 64 percent and 86 percent sands, respectively. Sediments containing high percentages of sand are generally less contaminated than sediment with high percentages of silt. Bulk chemistry analyses undertaken on the 2 composite samples showed that the upper layer sediments contained low levels of polychlorinated biphenyls (PCBs), copper, mercury, and zinc, while the lower layer was substantially free of contamination. The analytical results were compared with sediment quality guidelines derived by the NOAA from studies of sediment testing throughout the country. The NOAA sediment quality guidelines are reported as 2 values: the Effects-Range Low (ERL) and the Effects-Range Medium (ERM). The ERL value represents the concentration below which adverse biological effects rarely occur and the ERM value represents the concentration above which adverse biological effects frequently occur. Table 4.4-1 presents the results of the bulk chemistry tests of the upper quaywall sample (QWU) and the lower quaywall sample (QWL). As illustrated in the table, the sediment quality is generally good in the upper strata tested with no exceedances of ERMs and slight exceedances of ERLs for only 3 metals (copper, mercury and zinc) tested and Total PCBs. Test results for the lower layer of sediment near the quaywall reveal either no detection of contamination or measurements that are well below the ERL levels.

Bioassay and bioaccumulation studies were also done for the quaywall dredging related sediments pursuant to testing protocols required for ocean disposal. The sediment was determined not to be toxic and bioaccumulation test results were within the range of acceptability for ocean disposal. The permit approval for disposal of these sediments, proximate to the proposed improvements for Berth LIMA, attest to the relatively non-contaminated nature of the bay sediments in this vicinity of NASNI.

Table 4.4-1 Bulk Sediment Contaminant Concentrations Along Quaywall (*QWU* and *QWL* represent the upper and lower strata samples)

	Criteria		Samples	
Contaminant	**ERL**	**ERM**	**QWU**	**QWL**
Arsenic (mg/kg)	8.2	70	6.48	2
Cadmium (mg/kg)	1.2	9.6	0.537	ND
Chromium (mg/kg)	81.0	370	33.9	9.54
Copper (mg/kg)	34.0	270	**123**	6.12
Lead (mg/kg)	46.7	218	37.9	2.14
Mercury (mg/kg)	0.15	0.71	**0.411**	ND
Nickel (mg/kg)	20.9	51.6	9.29	3.09
Selenium (mg/kg)	NA	NA	0.816	ND
Silver (mg/kg)	1.0	3.7	0.621	ND
Zinc (mg/kg)	150	410	**211**	34.3
TRPH (mg/kg)	NA	NA	230	28
Organotins (µg/kg)	NA	NA	34.2	ND
Total Pesticides (µg/kg)	NA	NA	ND	ND
Total PCBs (µg/kg)	22.7	180	**65**	ND
Total PAHs (µg/kg)	4022	44,792	1639	ND

Notes:
Bold values in shaded rows indicate exceedance of an ERL value, but within range.
mg/kg – milligrams per kilogram
µg/kg – micrograms per kilogram
NA – not available/not applicable
ND – not detected above the method reporting limit
ERL – Effects Range-Low
ERM – Effects Range-Medium
PAH – polynuclear aromatic hydrocarbon
PCB – polychlorinated biphenyl
TRPH – total recoverable petroleum hydrocarbons
QWU – quaywall upper
QWL – quaywall lower
Source: DON 2007

4.4.2 Environmental Consequences of the CVN Infrastructure Improvements: Marine Water Resources

4.4.2.1 Impact Analysis

Bathymetry

The proposed project would not affect bathymetry because the placement of fendering piles would not result in a net change in bottom depths within the project area.

Water Circulation

No impacts to circulation would occur because the proposed project would not alter the bathymetry or place new structures that would impede water flow.

Marine Water Quality

Impacts to marine water quality from the proposed project would result from the driving of fendering piles. Driving of the piles would be conducted in accordance with permit specifications and other requirements of EPA, USACE, and RWQCB. Permit conditions, intended to reduce potential impacts to water quality, are expected to include the following:

- Pile driving would be performed using a jetting and/or hydraulic pile driver, which minimizes losses or spillage to adjacent waters.
- A silt curtain would be deployed around the pile driving area to restrict dispersion of suspended sediments.
- Water quality monitoring would be conducted during pile driving to ensure compliance with conditions specified in the water quality permit; results from monitoring would be reported to regulatory agencies on a regular (e.g., monthly) basis.
- Monitoring of turbidity may be required to assess potential impacts from pile driving operations.

Pile driving operations are expected to generate localized and temporary turbidity plumes associated with re-suspension of bottom sediments. Increased suspended sediment concentrations would result in other water quality changes, such as reduced light transmittance and increased oxygen demand leading to reduced dissolved oxygen concentrations. However, pile driving operations would not cause persistent changes in dissolved oxygen concentrations or in other water quality parameters because sediments suspended during pile driving would settle to the bottom, and natural mixing processes would reduce any other localized changes to water quality, within a period of several hours after pile driving stops. Tidal currents in the vicinity of the pile driving site would transport suspended sediments up to several hundred feet, but currents would also promote rapid dilution of the turbidity plume. The water quality permit issued for the pile driving operations is expected to define criteria for turbidity levels, suspended solids concentrations, and other chemical constituents. The receiving water criteria for turbidity and suspended solids are expected to be defined as light transmittance levels at a point downcurrent from the pile driving that cannot be less than 80 percent of ambient levels. The Navy will abide by any and all conditions set out in the permit. A silt curtain will be used along the perimeter of activity when driving the piles to retain suspended sediments within the project area.

Pile driving operations are not expected to cause turbidity levels that exceed the criterion set out in the permit, because most of the sediment in the area consists primarily of sands, which settle rapidly. Elutriate tests were included in the recent sediment quality testing undertaken for the adjacent quaywall project. These types of tests measure the amount of contamination in sediment mixed with site water. These tests resemble the mix of sediment that are contained within the temporary turbidity plumes that would be created by the proposed pile driving associated with the improvements to Berth LIMA. The elutriate test results indicate that the bay floor sediments that would be disturbed by the proposed project would not result in significant releases of chemical contaminants to bay waters or mortality to aquatic organisms. Thus, impacts to water quality would occur, but these would be short term and less than significant.

4.4.2.2 Significance Before Mitigation

Based upon the above analysis, the proposed project is not expected to have a significant impact.

4.4.2.3 Mitigation

The proposed project would not cause significant water quality impacts, and project actions would be implemented in conformance with permit conditions intended to protect water quality. Therefore, no mitigation measures are proposed.

4.4.2.4 Significance After Mitigation

Based upon the above analysis, the proposed project is not expected to have a significant impact.

4.4.3 Environmental Consequences of the No Action Alternative: Marine Water Resources

Under the No Action Alternative, impacts to marine water resources associated with the construction of infrastructure improvements at Berth LIMA would not occur. In the near term, the existing conditions of water resources in the vicinity of Berth LIMA would remain unchanged. However, the substandard berth infrastructure would be expected to continue to degrade at an increasing rate over time, resulting in an increase in the frequency and intensity of maintenance activities required to maintain operational capability. The potential impacts to water resources associated with such maintenance activities would have an adverse but not significant impact.

CHAPTER 5
EROSION ALONG FIRST STREET SHORELINE

5.1 BACKGROUND

To address comments made by area residents during the SEIS scoping process, this chapter provides an assessment of the relative influence of San Diego Bay shoreline processes and CVN movement on the erosion occurring along First Street in Coronado. The information in this chapter is supplemented by a series of illustrations that are provided in Appendix B.

The relevant public scoping comments were focused on the potential causes of ongoing erosion at certain exposed, unprotected sections of the shoreline along the northwest extent of First Street, as depicted in Figure 5.1-1. The Focus Area comprises 2,800 linear feet of shoreline between Orange Avenue and Alameda Avenue.

Figure 5.1-1 Focus Area Based on Public Comments

(*Source*: USACE 2000 and 2005)

5.2 FACTORS AFFECTING SHORELINE EROSION IN SAN DIEGO BAY

Shoreline erosion in San Diego Bay is a function of the cumulative influences of several factors, including prevailing geomorphology, reduced sedimentation, water currents, shoreline configuration (including related effects of wave reflection), and bay floor conditions, as described below.

Geomorphology

North Island and Coronado are located on a north-south trending graben. A graben is a narrow area of the earth's crust that has subsided relative to adjacent fault blocks. The Silver Strand, Coronado, and Spanish Bight faults are surface expressions of the western half of this graben centered on San Diego Bay between the Point Loma and La Nacion fault zones (Marshall 2006). The undulating geology between these fault zones, possibly caused by transtension (a form of geological shifting) of the Rose Canyon Fault Zone that runs between the Point Loma and La Nacion fault zones, coincides with slightly lower bedrock in the Spanish Bight and San Diego Bay relative to North Island and Coronado (Kennedy 2001; Marshall 2006). Until it was filled with artificial fill material in 1944 and 1945, a natural trough (also called the Spanish Bight) existed between North Island and Coronado that allowed waters of San Diego Bay to reach south of present day Sherman Road (Figures 5.2-1 and 5.2-2). These figures show the natural deep water basin between Coronado and North Island at the north end of the Spanish Bight in 1872 and 1902, respectively.

The northern extension of this trough formed a natural basin near its intersection with the main shipping channel of San Diego Bay that mariners and military have historically used for turning and docking large vessels (Sudsbury 1992; DON and SDUPD 2000) (Figure 5.2-1). The "Turning Basin" is still in use today and has been further deepened to accommodate modern vessels including CVNs.

The subject shoreline location extends from the NASNI berthing area along First Street and is approximately 5,000 linear feet. This location is generally underlain by loosely consolidated artificial fill consisting of bay mud deposits. The area between NASNI and Coronado is underlain by artificial fill which stretches approximately from the sand dunes facing the Pacific Ocean to San Diego Bay between Alameda Boulevard in Coronado and Wright Avenue on NASNI. Along the bay on NASNI, the artificial fill is marked approximately by the land north of Roe Street/Curtis Street, west of a line drawn on a map connecting Curtis Street with Fourth Street West, and west of Third Street West on NASNI. Along the bay on Coronado, the artificial fill is marked approximately by the land north of First Street between Alameda Boulevard and G Avenue, trending further bayward along First Street between G Avenue and A Avenue, and encompassing most of the land east of Glorietta Boulevard (Figure 6 of Appendix B).

The fill along the shoreline was provided in large part by hydraulic filling that extensively mixes marine sediments with water. Since this fill material is moved hydraulically, there is little or no consolidation and the fill soils are a potential liquefaction hazard (DON 1995 and 1999). Liquefaction, the process by which a solid goes into a liquid state, can occur when loosely consolidated or unconsolidated sediments are saturated with water and are exposed to energy at a magnitude or duration capable of breaking down sediment cohesion. Unprotected loosely consolidated or unconsolidated sediments along the San Diego Bay shoreline are exposed daily to water (by direct contact with the bay, a relatively shallow groundwater table, or both) and energy (waves and currents). It would most likely require additional energy input, such as an earthquake, to initiate liquefaction of artificial fill in the vicinity of the project area. However, the low cohesive properties of artificial fill that allow for the liquefaction hazard to exist indicate that the fill layer, where exposed as an unprotected shoreline bluff, would (due to a lack of lateral support) have a higher probability to fail when exposed to water and energy. Therefore, the combination of artificial fill lacking lateral support and the presence of persistent water and energy, places exposed portions of shoreline at a higher risk for erosion than protected artificial fill or well-consolidated soils.

LEGEND

- A Spanish Bight
- B North Island
- C Coronado

Source: Pryde 1992.

Figure 5.2-1
Subdivision Map of San Diego from Approximately 1872

Source: Historical Maps of San Diego 2004.

Figure 5.2-2
Geologic Map of San Diego, 1902

Reduced Sedimentation

Historically, San Diego Bay served as a deposition point for sediments carried by the San Diego, Otay, Sweetwater, and Tijuana rivers, and other small drainages (Figure 5.2-3). It has been postulated that enough sediment was deposited in this manner that, without human intervention, San Diego Bay would have eventually, in geologic time, filled up with sediment delivered by these rivers and drainages (DON and SDUPD 2000). The shorelines were relatively stable as the sediments removed during natural sediment exchange[1] were readily replaced by a continuous supply of sediment. Although no natural coastline will always be exactly the same, the condition of dynamic equilibrium, a more or less equal state of sediment inputs versus outputs, is implicit when there is little observed long-term change to shoreline position or beach widths. In recent years, however, this coastal dynamic equilibrium has been altered by human activities. The construction of dams, flood control channels, jetties and shoreline protection structures has cut off the natural supply of sediment available to adjacent shorelines. Reductions in river, creek, drainage and other shoreline sediment discharges threaten the long-term stability of shorelines previously nourished by these sources (Willis and Griggs 2003).

Figure 5.2-3 Historical Flows of Rivers Contributing Sediment to San Diego

(*Source*: Historical Maps of San Diego 2004)
Note: "Tijuana" frequently appears as "Tia Juana" in historical maps and documents.

[1] Even along stable shorelines sediment grains do not remain indefinitely. The greater the amount of force applied to the grains, the more mobile they will become. If the forces of wind are ignored, then in general, the closer the grains are to the water, the greater their exposure to waves and currents, and therefore the shorter their residence time at a discrete point on the beach (Pethick 1984).

As noted above, the primary sources of sediment in San Diego Bay are rivers and creeks. The San Diego, Otay, and Sweetwater rivers (plus smaller streams) historically discharged from 800,000 to 1,100,000 cubic meters (m^3) of material annually into San Diego Bay (DON and SDUPD 2000). Table 5.2-1 provides this historic information. Additionally, sediments from the Tijuana River entered the Silver Strand Littoral Cell, an area under the continuous influence of specific longshore ocean currents, and traveled north in the Zuniga Current to form the tombolo (a spit of land connecting an island to the shore) that includes the Silver Strand, Coronado, and North Island (Inman 1991; DON and SDUPD 2000).

Table 5.2-1 Historic and Present Annual Average Discharges of Sediment From Drainages to San Diego Bay

Waterway	Historic average annual sediment discharge to San Diego Bay	Present average annual sediment discharge to San Diego Bay	Percent loss of annual sediment discharge to San Diego Bay
San Diego River	380,000 – 530,000 m^3	0 m^3	-100%
Otay River, Sweetwater River, and Other Drainages[a]	420,000 – 570,000 m^3	140,000 – 190,000 m^3	-66%
Tijuana[b]	[200,000 m^3]	[50,000 m^3]	[-75%]
Totals	800,000 – 1,100,000 m^3	140,000 – 190,000 m^3	-82%

[a] Data for historic average annual sediment discharge and percent loss to San Diego Bay from the Otay River, Sweetwater River, and other drainages are derived from the difference between "Totals" and the total for "San Diego River".
[b] Tijuana River data is not included in "Totals" as it is unclear how much of the sediment entered San Diego Bay.
Sources: DoN and SDUPD (2000); Inman (1991)

The Zuniga Jetty was constructed in 1893 (and later extended on several occasions) to prevent sediments in the Silver Strand Littoral Cell (largely fueled by the Tijuana River) from entering San Diego Bay (Figure 7 of Appendix B). Following an extension of the jetty in 1901, railroad tracks northwest of Zuniga Jetty had to be relocated due to erosion (Kuhn and Shepard 1984). Sediments from the Tijuana River also entered San Diego Bay via the Silver Strand. During storms, the ocean occasionally breaches the Silver Strand allowing a direct passage of sediments from the Silver Strand Littoral Cell. Additionally, Silver Strand Littoral Cell sediments were likely delivered to San Diego Bay by way of wind transport from sand dunes following deposition along the Silver Strand (Figure 8 of Appendix B). This type of sediment transport has been demonstrated in other locations with similar coastal dune systems (Pethick 1984; Wiegel 2002).

Although it is unclear how much of the 200,000 m^3 of material annually discharged by the Tijuana River was deposited in the bay, the tombolo depositional feature (Silver Strand, Coronado, and North Island), shoaling south of Zuniga Jetty, and erosion following the extension of the jetty, suggest that the Tijuana River was an important contributor. The San Diego River was permanently diverted (after several failed attempts) to Mission Bay in 1876, and by 1937 the Sweetwater, Otay, and Tijuana rivers had all been dammed. Today the San Diego, Otay, and Sweetwater rivers (plus some smaller drainages) discharge only 140,000 m^3 to 190,000 m^3 of material into San Diego Bay, a reduction of up to 82 percent of historic discharges (DON and SDUPD 2000) (see Table 5.2-1).

Sediment delivery from rivers, creeks, drainages, and bluff erosion (see *Shoreline Configuration* section below) is important for North Island and Coronado shorelines because it enables a thin beach to grow, which maintains a buffer between the backbeach bluffs and the water, and also diffuses wave and current energy before it strikes the bluffs. Where there is no buffer, the backbeach bluffs are directly exposed to wave and current energy. Moreover, the lack of a beach buffer typically corresponds to a steeper gradient in the exposed shoreline, which can weaken the lateral support of loosely consolidated or unconsolidated bluffs.

Dredging and filling activities in San Diego Bay have resulted in a relatively flat bay floor with steep shorelines, which requires armoring to fortify the shoreline. This bathymetric setting is out of equilibrium with the natural shoreline setting of 20:1 slopes. Sediments settling out of suspension in wide shallow areas of San Diego Bay, such as South Bay, Glorietta Bay, or the former Spanish Bight, were more likely to remain in circulation (within the sediment budget). When North Island and Coronado were expanded in the 1930s and 40s, the shoreline was moved outward into San Diego Bay. This expansion moved the shoreline closer to deeper waters, where there is greater wave propagation from wind driven fetch and increased proximity to the shipping channel, and more direct tidal energy, thereby further reducing the shallower and calmer areas of the bay where sediments are more likely to settle out and still remain in circulation. Sediments that settle out in the deeper portions of the main channel are less likely to be re-circulated back to the shoreline.

Currents

Generally, currents in San Diego Bay are stronger near the mouth and diminish towards the head as the tidal prism volume (the difference in the amount of water between low and high tide) is reduced relative to the cross sectional area. Variations of this trend are observed in areas of constriction and expansion of the tidal prism volume, such as the potential for stronger currents in the narrow region between Seaport Village in San Diego and First Street in Coronado (Largier 1995). Studies conducted by Largier (1995) also show large longitudinal diffusion of tidal currents just outside of the bottleneck between Seaport Village and First Street, suggesting a funneling of energy through that area. Moreover, the position of the former Spanish Bight area (approximately between northeast NASNI and northwest Coronado) places it directly in the path of ingoing and outgoing tidal flows due to the "dog leg" hook in San Diego Bay. The relatively higher current velocities and deeper waters in this narrow corridor do not promote the formation of wide shoreline beaches, even under natural sediment delivery conditions. Historical maps and aerial photos show a substantial lack of shoreline expansion in this region compared to wider regions of San Diego Bay[2]. The lack of appreciable expansion was in evidence well before sediment inflow from rivers was reduced and the shorelines were built outward closer to the main channel.

In 2008, the Space and Naval Warfare Systems (SPAWAR) Command conducted a study that included the deployment of 3 Acoustic Doppler Current Profiler (ADCP) units to measure currents at 3 locations along the shoreline areas of First Street in Coronado (see Appendix H for the full report with figures). The first deployment was made at an approximate 33-foot depth, approximately 380 feet from the shore, between February 28 and March 25. The ADCP collected current velocity measurements every 5 minutes from approximately 7 feet to 33 feet above the bottom at approximately 3-foot increments, thereby collecting over 67,000 records. The second deployment, closer to shore and further north, was made at an approximate 6-foot depth, approximately 233 feet from shore between March 27 and April 4. Measurements were collected every 3 minutes at approximately 7 feet above the bottom, thereby collecting 3,807 records. The third deployment was made, again at an approximate 7-foot depth, approximately 272 feet from shore between April 9 and April 22. Measurements were collected every 5 minutes at approximately 7 feet above the bottom, thereby collecting 3,780 records. The study showed that, in general, currents become stronger at locations away from the shore, rather than closer to the shore.

[2] Copies of maps dated 1603, 1782, 1793, 1839, 1850, 1859, 1872, 1876, 1888, 1897, 1902, 1912, 1930, 1948, 1950, 1967, 1977, 1979, 1986, 1995, 2000; and aerial photos dated 1923, 1926, 1928, 1931, 1932, 1933, 1943, 1953, 1956, 1959, 1966, 1970, 1978, 1983, 1993 and 1994 were reviewed for shoreline accretion patterns. *Source:* TEC 2008.

In 1998, a hydrodynamic model called the TRIM2D was used to simulate tides and currents within San Diego Bay (Wang et al. 1998). Using 8 different locations, distributed from the mouth to the head of the bay, the TRIM2D hydrodynamic model was able to simulate known historic data on bay currents, including velocity and direction, within San Diego Bay. The bathymetry data and measurements of tides and currents used in the model were for pre-dredging conditions.

The TRIM2D hydrodynamic model was used in the 2008 SPAWAR study to evaluate the potential for altered flow field, essentially the potential for changes in currents, as a result of dredging. For dredging scenarios, it was assumed that depths in the turning basin were dredged from 42 feet (pre-dredging) to 3 different depths: 50, 60, and 70 feet. For each dredging scenario, simulated currents were compared with those before dredging. The results of the study showed that dredging in the turning basin decreases current velocity by negligible amounts (less than 0.39 inches per second) along the northern portion of First Street. This area is not appreciably affected by dredging of the turning basin because currents in the bay are governed by the physical constraints of the entire bay (shape, size, and bathymetry) and oceanic inputs and outputs. Moreover, the conservation laws of mass and momentum establish that confined dredging of the turning basin would decelerate currents in the turning basin. The result therefore would be slightly reduced current velocity along the northern shore of First Street. The currents were shown to be too weak to move sediments along the shore. Therefore, dredging in the turning basin does not promote the transport of sediments away from First Street in bay currents.

Shoreline Configuration

While rivers, creeks, and drainages are the most voluminous contributors of sediment along the shoreline, backbeach bluffs are another important contributor to shorelines that have been removed from much of San Diego Bay. Historically, sediment-laden beaches with bluffs lined much of San Diego Bay from North Island south along First Street in Coronado (Figure 9 of Appendix B). The unconsolidated bluffs were active and would periodically contribute sediment to the shoreline during extreme tidal and wave action, surface water run-off, or slumping due to gravitational forces. Due to the unstable and active nature of the bluffs, the bluff-tops (not just at Coronado and North Island, but across San Diego County) remained largely undeveloped until population and development pressures in the post-World War II years hastened bluff and cliff top development (Kuhn and Shepard 1981; Flick, et. al. 1991; Griggs, et.al. 1991). Figure 10 of Appendix B shows a lack of space for development bayward of First Street and possible interference with First Street itself along the northwestern reach. Figures 12 through 15 of Appendix B show the lack of development bayward of First Street into the 1940s.

When North Island and Coronado were expanded in the 1930s, 40s, and 50s, the shoreline was moved outward into San Diego Bay closer to deeper waters (Figure 5.2-4). Essentially, the bluffs were "stabilized", meaning that they were built upon and effectively frozen-in-place. Sediment formerly available as a result of naturally occurring bluff retreat was no longer being delivered to the shoreline. The new shoreline position was not historically, bathymetrically, or geomorphologically supported by the natural state of the bay. If the remaining shoreline beaches were maintained so that they could continue to function as buffers between the bluffs and San Diego Bay, the bluff-top property would not likely have shown signs of erosion. During the mid-1980s, the shoreline reached its maximum bayward extent (Figure 5.2-4). Filling along the shoreline was not observed in aerial photos after 1985, subsequent to that several places along the artificial shoreline have undergone erosion (USACE 2000 and 2005).

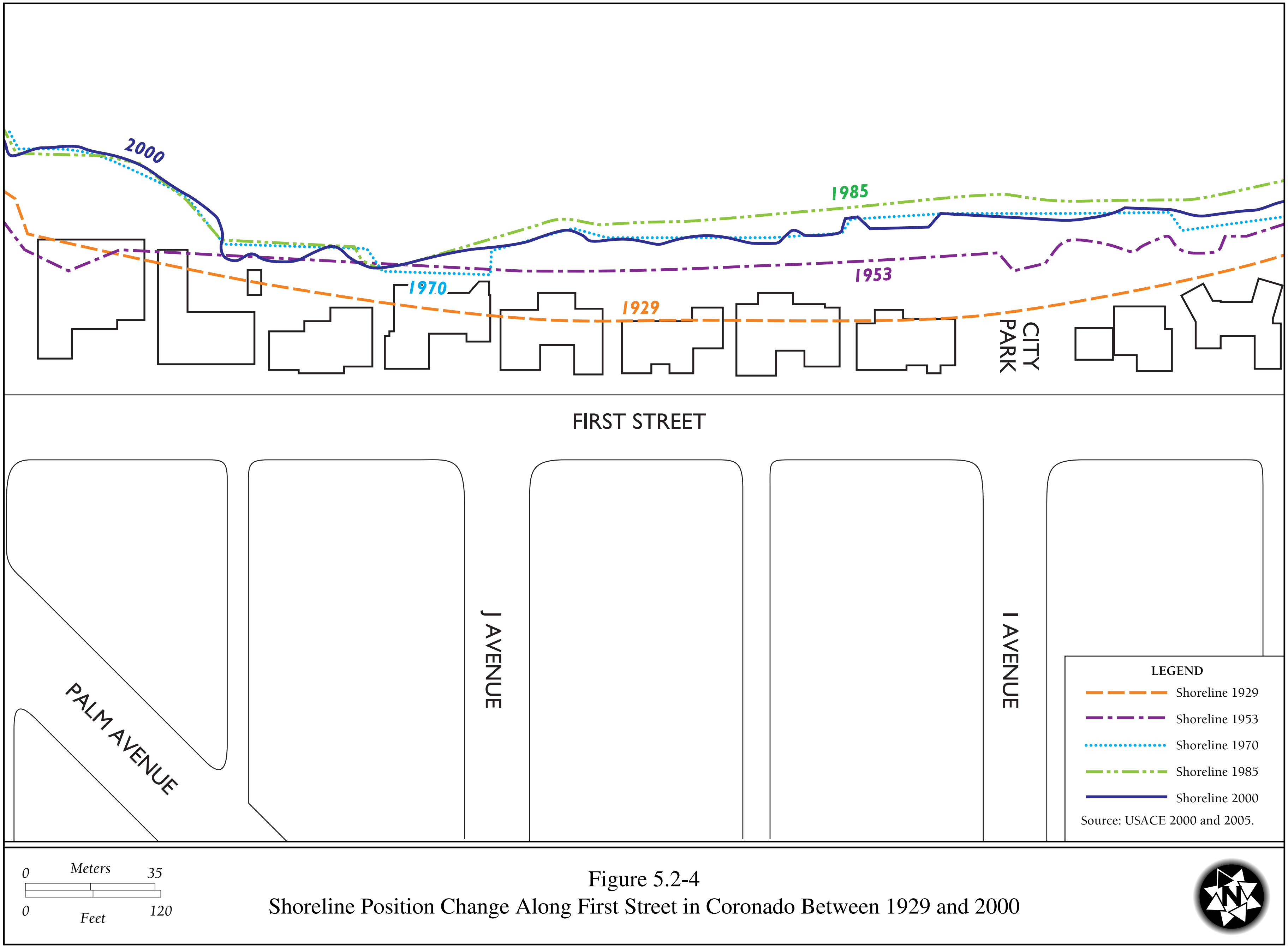


Figure 5.2-4
Shoreline Position Change Along First Street in Coronado Between 1929 and 2000

However, the shoreline is still well bayward of its natural position (Figure 5.2-4). The removal of sediment sources to the shoreline, both by river damming and bluff stabilization, combined to reduce the width of the shoreline. This exposed the bluff to additional wave and current action, causing steepening and encouraging erosion of the "stabilized" bluff.

The removal of sediment from bluffs to the shoreline when acted upon by a water body is a natural process. However, in absence of a beach the process can be accelerated. The process can be halted for long periods of time with the addition of well-planned and well-constructed shoreline protection structures. Property owners along First Street in Coronado have applied a variety of methods in an attempt to freeze the shoreline in its current configuration, including seawalls, rip-rap, and artificial pocket-beaches. Shoreline protection efforts have not been uniform. A continuous, coherent shoreline structure and approach is typically far more effective than individual isolated efforts because the entire line of a coastal defense is only as strong as its weakest link (Griggs and Fulton-Bennet 1988). Moreover, non-continuous shoreline protection structures may accelerate erosion at the flanks (end scour) as a result of increased turbulence from wave reflection (Tait and Griggs 1990).

Bay Floor

There has always been a narrow, natural channel deepening at the mouth of San Diego Bay, possibly cut by river floods at a time when sea level was much lower (DON and SDUPD 2000). This channel has been used historically for safe passage of ships seeking sheltered anchorage at port. The floor of San Diego Bay has been modified repeatedly over the years in response to civic, commercial, recreation, military, and environmental needs. The following are only a few highlights among many dredging and modification efforts in San Diego Bay. According to the Port of San Diego, dredging of San Diego Bay began in 1891, 26 years before North Island was commissioned a Naval Air Station (SDUPD 1999; Sudsbury 1992). San Diego Bay was dredged again following a 1927 bond measure passed by the citizens of San Diego to dredge and use the dredge materials to reclaim 142 acres of tidelands for the creation of an airport (which would eventually become Lindbergh Field) (SDUPD 1999). The main channel was deepened again in 1976 and the material was used to help create the North and South Embarcadero marine peninsulas. The main channel is currently maintained to a depth of 47 feet to accommodate CVNs to/from the NASNI turning basin.

In the USACE Los Angeles District Coronado Shoreline Initial Appraisal Report (dated December 7, 2000), a conclusion was reached that sediment sinks could facilitate erosion along First Street. As noted in the preceding paragraph, the San Diego Bay floor has always possessed a deeper channel (Figure 4 of Appendix B). Historically, seafarers have transited this channel for the navigation of larger boats and vessels upon entering San Diego Bay (Sudsbury 1992). In general, the channel depth increases from the head to the mouth of the bay and further deepens as it drops down to the deeper ocean floor. Colder, denser, more saline water, along with heavier sediments[3] fall to the deepest parts of the bay and follow the downward gradient out to sea. As noted in the *Reduced Sedimentation* section, sediments that migrate into the deep channel are unlikely to return against the gradient to shallower depths. Likewise, sediments entering the bay from outside sources, such as the Silver Strand Littoral Cell, historically entered the bay by migrating along the shallower areas close to shore, at near-surface and surface depths. Sediment from the Silver Strand Littoral Cell that migrated into deeper waters was flushed back out to sea.

[3] The threshold at which sediment grain weight is sufficient to fall out of suspension is relative to the amount of energy acting upon the grains; generally, this is when the force of gravity exceeds the fluid force applied to them through currents, turbulence, or wave action (Pethick 1984).

The state of dynamic equilibrium exists when the sum of sediment sources is approximately equal to the sum of sediment sinks. As noted in the *Reduced Sedimentation* section, the coastline of San Diego Bay was in a dynamic equilibrium before the majority of sediment sources were removed. Although there are only a fraction of former sediment sources available to the coastline, the primary sediment sink, deep portions of the bay, remains. As noted in the *Geomorphology* section, the NASNI turning basin has historically been, except for the main channel, deeper than the bay floor surrounding it due to geologic forces. Again, seafarers used the deeper water in this area for the navigation of larger boats and vessels when maneuvering, porting, or seeking shelter in San Diego Bay (Sudsbury 1992). Because it is deeper than surrounding bay floor and is in close proximity to the main channel, the turning basin is also a sediment sink. Since the turning basin and the main channel have both been deepened together by dredging, they continue to function as sediment sinks in the same manner that they have historically.

In general, Navy dredging occurred when channels required maintenance, the Base (NASNI) was expanded, or when new generations of ships necessitated deeper drafts. Perhaps the most significant dredging and modification efforts were those that directly led to the current configuration of NASNI. In the period from 1935 to 1936, parts of the Spanish Bight on the east end and the main channel on the west end of North Island were dredged and the material placed along NASNI's northern shore. In the early 1940s, the main channel of the bay was dredged to 35 feet and the dredged materials were used to fill in the Spanish Bight and expand North Island northward. Some of this dredged material was used to add additional fill along First Street in Coronado and Glorietta Bay (DON 2001). The NASNI turning basin was all that remained following the filling of the Spanish Bight; however, the basin has been maintained in accordance with the requirements of the draft of modern day aircraft carriers (Sudsbury 1992). The turning basin is maintained at its current depth of 50 feet.

Prior to major filling activities, which began in 1888, the bay had an area of 21 to 22 square miles (mi^2), as defined by the mean high tide line of 1918. Based on this high tide line, about 6 mi^2 or approximately 27 percent of the bay has been filled. Only 17 to 18 percent of the original Bay floor remains undisturbed by dredge or fill (DON and SDUPD 2000).

The presence of eelgrass can be used as an indicator of shoreline stability not just because it can help stabilize floor sediments, but more importantly it will not grow if the sediment is highly active or the bay floor experiences frequent changes. The spreading roots and rhizomes of eelgrass stabilize sediment in a manner similar to how vegetation stabilizes soil on a hillside. Sediment that is in motion and stirred-up in the water column results in poor water quality and poor sunlight penetration, which can kill or prevent the growth of eelgrass. Another threat to eelgrass is physical disturbance, which is anything that could physically alter the bay floor, from the natural (i.e., slumping, sliding, and erosion) to the non-natural (i.e., prop wash and trampling). Typically, if either of these disturbance conditions exists, eelgrass is unlikely to be encountered or will be limited to small pockets.

Figure 5.2-5 shows a large bed of eelgrass starting just east of the rocky revetment offshore approximately from the intersection of First Street and Alameda Blvd. and continuing along an easterly direction for approximately 2,800 linear feet. The presence and population of eelgrass demonstrates stability of the bay floor and sediments in this area.

LEGEND	
(green swatch)	Eelgrass
(blue line)	Bathymetric Contour Line

Source: NAVFAC SW 2008b.

0 Meters 300
0 Feet 1,000

Figure 5.2-5
Presence of Eelgrass Along First Street, Coronado, 2004

5.3 ARMY CORPS OF ENGINEERS REPORTS 2000 AND 2005

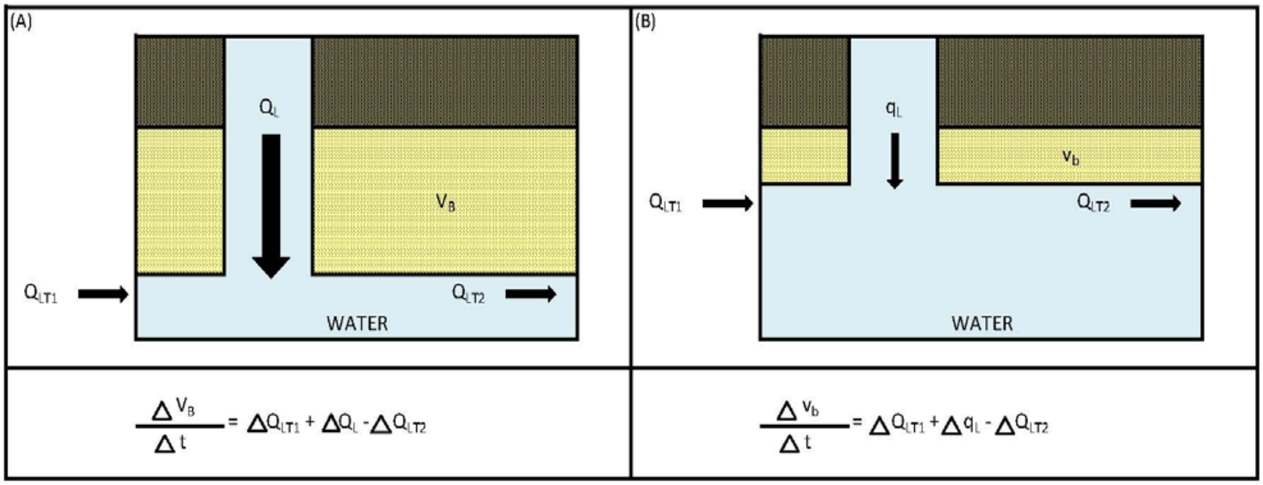
The USACE, in their December 2000 and September 2005 reports, indicated that they reviewed aerial photos from 1928/29, 1953, 1970, 1985 and 2000, compared the bluff lines from each year, and measured the rate of shoreline change. Their analysis showed varying amounts of filling along the coast of the study area for all years through 1985. This filling activity often occurred in conjunction with the development of private property. The most significant filling occurred within the western half of the shoreline. Their report stated that "over the 15 year period between 1985 and 2000, erosion of the shoreline, particularly the western portion of the study area, has been found to be as much as 25 feet. This appears to be the result of inadequate shoreline protection and the filling of the shoreline extending it to deeper water." Based on this study, the USACE concluded, "If there is no organized effort to protect this portion of the shoreline, it appears that erosion of the shoreline will continue at a rate as high as 1.7 feet per year."[4] Thus, the USACE report identifies artificial nourishment along the shoreline in all of its data samples up through 1985, and identifies erosion thereafter. Shoreline nourishment through 1985 also coincides with the maximum bayward extent of the shore (USACE 2000-Appendix A and USACE 2005-Appendix D).

The determination of shoreline erosion rates through aerial photography does not explain variations to conditions in the subject area that have a direct effect on the erosion rate. Variations include changes in sediment inputs and outputs, wave climate, currents, vessel traffic, or the effects of physical changes to other parts of the bay. According to the Journal of San Diego History, "the U.S. Army Corps of Engineers, in order to save San Diego Bay from silting, diverted the waters of the San Diego River into Mission Bay" (Gabrielson 2002). Beginning with the damming of San Diego Bay's major river sediment sources (1876-1937) and the stabilization of the waterfront bluffs, an erosion condition was created in San Diego Bay, which has resulted in a remarkable lack of need for maintenance dredging in San Diego Bay (DON and SDUPD 2000). The effect of removing river sediment sources is a direct loss of sediment to the shoreline (Figure 5.3-1). If the river sediment discharge (Q_L) shown in box A of Figure 5.3-1 is reduced significantly to q_L shown in box B below, and the longshore sediment transport (Q_{LT}) remains constant, the initial beach volume (V_B) must decrease to v_b to balance the budget. This is what would have been observed along First Street had there been no artificial fill added to the area.

The 1859 Nautical Map of San Diego Bay (shown in Appendix B, Figure 4) shows a natural deep water basin, partially filled with sediment, between Coronado and North Island. Most likely, the 1859 configuration represents the beach in its natural state.

[4] In a 1955 report, the USACE noted that erosion of the bluff along the First Street shoreline was occurring at a rate of 1 foot per year. The report recommended the placement of a revetment against the bluff along the property lines. It was recommended that the revetment have an elevation of 10 feet above MLLW and be constructed continuously for a length of 1,900 feet. The report indicated that no reimbursement of costs could be made by the federal government because the shoreline is privately owned (USACE 1955).

Figure 5.3-1 Schematic of the Effects of Reduced River Sediment on an Idealized Sediment Budget



Source: (Willis and Griggs 2003)

The effects of these alterations were masked along First Street because between 1929 and 1985, artificial fill was placed along the shoreline in quantities and frequencies sufficient to "grow" the shoreline bayward by as much as 90 feet in the vicinity of First Street and I Avenue (USACE 2000-Appendix A and USACE 2005-Appendix D). According to the USACE reports, since 1985 the annual rate of erosion along First Street has been as high as 1.7 feet per year. The purpose of the 2000 and 2005 USACE reports was not to be taken as comprehensive studies of erosion along First Street. Rather, the reports were conducted as superficial appraisals of the shoreline for the purpose of determining Federal Interest in shoreline protection and equally as important, recreational land improvements. The breadth of research and depth of analysis was understandably well below USACE standards for technical analysis because they were not intended as such. For comparison, the 1984 USACE Shoreline Protection Manual is comprised of 2 volumes, each 648 pages. The purpose of the manual was to provide basic principles of coastal processes; methods for computing coastal planning and design parameters; and guidance on how to formulate coastal flood studies, shore protection, and navigation projects. USACE concluded in the 2005 report that there was no Federal Interest in continuing the study.

5.4 CVN SHIP MOVEMENTS IN SAN DIEGO BAY

In the USACE Los Angeles District Coronado Shoreline Initial Appraisal Report (dated December 7, 2000), a conclusion was reached that a possible cause for the erosion along First Street could be related to wave action created from boat and ship wakes through the area. Boat wakes may contribute to erosion in some cases given the similarity to natural wave action (Navy has not specifically studied the general erosive effects of boat wakes), and all boats and ships can be expected to generate wakes as they move through the water. However, larger vessels such as Navy ships travel slowly through the bay, and wake size, speed, and potential for erosive effects are likely to be more closely related to the speed of a vessel through the water than the size of the vessel.

Aircraft carrier movements in San Diego Bay are not only slow, but according to the 2005 San Diego Harbor and Safety Plan, carriers are responsible for only 0.02 percent of total annual ship, boat, and vessel movements in San Diego Bay (HSC 2005). Of the 10,000 average annual military vessel movements in San Diego Bay, only 52 are from aircraft carriers (NAVOPS 2008). Aircraft carrier movements; therefore, are not a substantial source of boat-generated waves in San Diego Bay.

Additionally, prevailing dredge depths do not accommodate the deep drafts of aircraft carriers, so CVNs do not travel south of the turning basin to the area in front of First Street. Travel in the vicinity of the turning basin is limited to low speed, tug-assisted turning, docking and undocking maneuvers. Under normal conditions, tug movements do not stir up sediment or create substantial wakes. When "working" a boat, tugs will stir-up sediment within the confines of the turning basin because the screws of the tugs are pointed downward, and thus, they do not create wakes any larger than other boats, ships, or vessels (CNRSW 2008). Therefore, potential effects of CVNs and tug boats are confined to the turning basin, and the tug boats do not generate substantial wakes when working in the turning basin. While it is possible that wakes from certain types of boats (fast-moving and very common recreational watercraft, for example) may contribute to erosion along First Street, military vessels in general and CVN movements in particular would not be expected to contribute to erosion along the First Street shoreline.

5.5 SUMMARY AND CONCLUSIONS

In summary, the shoreline is a landform of continuous change. The erosional condition that currently exists along First Street is a result of natural conditions and historical alterations to the bay. When the artificial shoreline recedes, it is a natural response to conditions demanding more input of sediment at the toe of the shoreline. The 2008 SPAWAR study of currents in San Diego Bay (see Appendix H) showed that dredging in the turning basin decreases the velocity of Bay currents by negligible amounts along the northern portion of First Street. Consequently, the First Street area is not appreciably affected by dredging of the turning basin because currents in the bay are governed by the physical constraints of the entire bay (shape, size, and bathymetry), as well as oceanic inputs and outputs. Dredging in the turning basin does not promote the transport of sediments away from the shoreline along First Street. The presence and population of eelgrass along First Street suggests stability of the bay floor and sediments in this area. It is unlikely that dredging would affect the shoreline and its sediments without also affecting the bay floor and its sediments. This is further evidence that erosion of the shoreline is the result of an imbalance to the dynamic equilibrium of sediment sources and sinks that previously existed in the bay.

CVN movements are not a substantial source of boat-generated waves in San Diego Bay. Carriers and other larger military vessels tend to travel slowly through the middle of the bay, thereby limiting the potential for generating sizeable wakes that would impact the shoreline. CVNs also represent an insignificant proportion of vessel movements in the bay, and do not travel south of the turning basin because of their deep drafts and the shallower depths in front of the First Street properties. Therefore, CVNs do not represent a source of wake-generated erosion along First Street.

When the shoreline is artificially stabilized and expected to remain static, additional maintenance will inevitably be required. This is especially true when sediment inputs have been removed and the land has been extended outward into the water. To maintain these artificial conditions, supplementary maintenance, such as additional shoreline protection structures (and a uniform approach to constructing them), or additional sediment inputs are required. Without supplementary maintenance, unprotected portions of the shoreline along First Street in Coronado can be expected to continue to erode.

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CHAPTER 6
CUMULATIVE ANALYSIS

Federal regulations implementing NEPA (42 U.S.C. 4321 et seq.) and DON procedures for implementing NEPA (32 CFR 775), as described in OPNAVINST 5090.1C, require that the cumulative impacts of a Proposed Action be assessed. CEQ regulations implementing the procedural provisions of NEPA define cumulative impacts as:

> *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7).*

A cumulative impact may be additive or interactive. Interactive effects may be either countervailing (where the net adverse cumulative effect is less than the sum of individual effects) or synergistic (where the net adverse cumulative effect is greater than the sum of the individual effects). Cumulative impacts can result from individually minor but collectively significant actions that take place over time. Accordingly, a cumulative impact analysis identifies and defines the scope of other actions and their interrelationship with the alternatives if there is an overlap in space and time. Cumulative impacts are most likely to occur when there is an overlapping geographic location and a coincident or sequential timing of events. Because the environmental analysis required under NEPA is forward-looking, the aggregate effect of past actions is analyzed to the extent relevant and useful in analyzing whether the reasonably foreseeable effects of a proposed action may have a continuing, additive and significant relationship to those effects.

In order to analyze cumulative impacts, a cumulative impacts geographic region must be identified for which impacts of the Proposed Action and other past, present, and reasonably foreseeable future actions would be cumulatively recorded or experienced. The true geographic range of an action's effect may not be limited to an arbitrary political or administrative boundary. The following approach was used:

1. For each resource addressed in Chapters 3, 4, and 5, the potential for cumulative effects to these resources in combination with other past, present, or reasonably foreseeable future actions was assessed.
2. For those resource areas that were determined to have potential for cumulative effects, an appropriate geographic scope (or geographic study area) was determined for the cumulative impacts analysis for that resource.

Within the geographic study area for each resource area, the past, present, or future actions having the potential for additive and/or interactive effects were identified. Present and reasonably foreseeable future actions that have the potential to contribute to cumulative impacts are described in Section 6.1. The cumulative effects of these and other unspecified projects in combination with the impacts assessed in Chapters 3, 4, and 5 are then assessed in Sections 6.2 through 6.9.

6.1 PRESENT AND REASONABLY FORESEEABLE FUTURE ACTIONS

The following brief project summaries describe the present and reasonably foreseeable future actions that have the potential to contribute to cumulative impacts to the resources assessed in Chapters 3, 4, and 5 of this SEIS. The first 9 actions are military construction (MILCON) and other projects planned within the boundaries of NASNI and are shown in Figure 6.1-1 relative to the location of the proposed Berth LIMA improvements. Following these NASNI projects are descriptions of projects planned on other Navy installations in the vicinity of San Diego Bay. The last few projects described are development projects in the City of Coronado and larger waterfront developments proposed in other areas of San Diego Bay.

6.1.1 Special Project RM11-05: Quaywall Repair (NASNI, Naval Base Coronado)

Special Project RM11-05 involves both in-water and land based construction to repair the deteriorated portions of the NASNI quaywall along Berths LIMA through PAPA. The quaywall is distressed as a result of scouring at the base, which compromised its structural integrity. The proposed repairs are needed to prevent further damage to the quaywall and to provide continued functionality and support for the DON's operational and support mission. Project components include the following: (1) dredging and disposal of 49,000 cy of bay sediment; (2) placing rock armoring layers on the base of the sheet piling along the entire length of the quaywall (3,200 feet); (3) demolishing and replacing a portion (150 linear feet) of the damaged quaywall cap; (4) replacing 150 linear feet of damaged steam line; and (5) filling voids behind the quaywall. Construction is expected to occur in 2008. An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) have been prepared for this project, and it is currently in the design phase. Work is scheduled to begin in the summer of 2008 and be completed by the end of January 2009.

6.1.2 MILCON P-503: NASNI Child Development Center (CDC) Projects

In FY08, a CDC would be constructed at NASNI to accommodate 112 children. Project FY09 P-503 constructs a 160-child capacity addition at NASNI and a similar 112-child facility at NAB Coronado. These projects address the current deficit of 648 children for Naval Base Coronado. The expansion of Homecare and other regional initiatives is expected to satisfy the remaining deficit. A Categorical Exclusion (CATEX) is being prepared for the projects in both FYs.

6.1.3 Special Project RM261-08: NASNI Warehouse Consolidation

Special Project RM261-08 consolidates CVN and transient warehouse requirements. The project would first accomplish needed repairs at CVN warehouses B77 and B1 that support the USS NIMITZ (B77) and the USS REAGAN (B1). The contents of Building B651, which is currently used as a transient carrier warehouse and a gym, would then be distributed to B77 and B1 to consolidate warehousing functions. This project is currently un-programmed. If programmed, the estimated award date is 2010 with completion in 2011. NEPA documentation (CATEX) would be prepared.

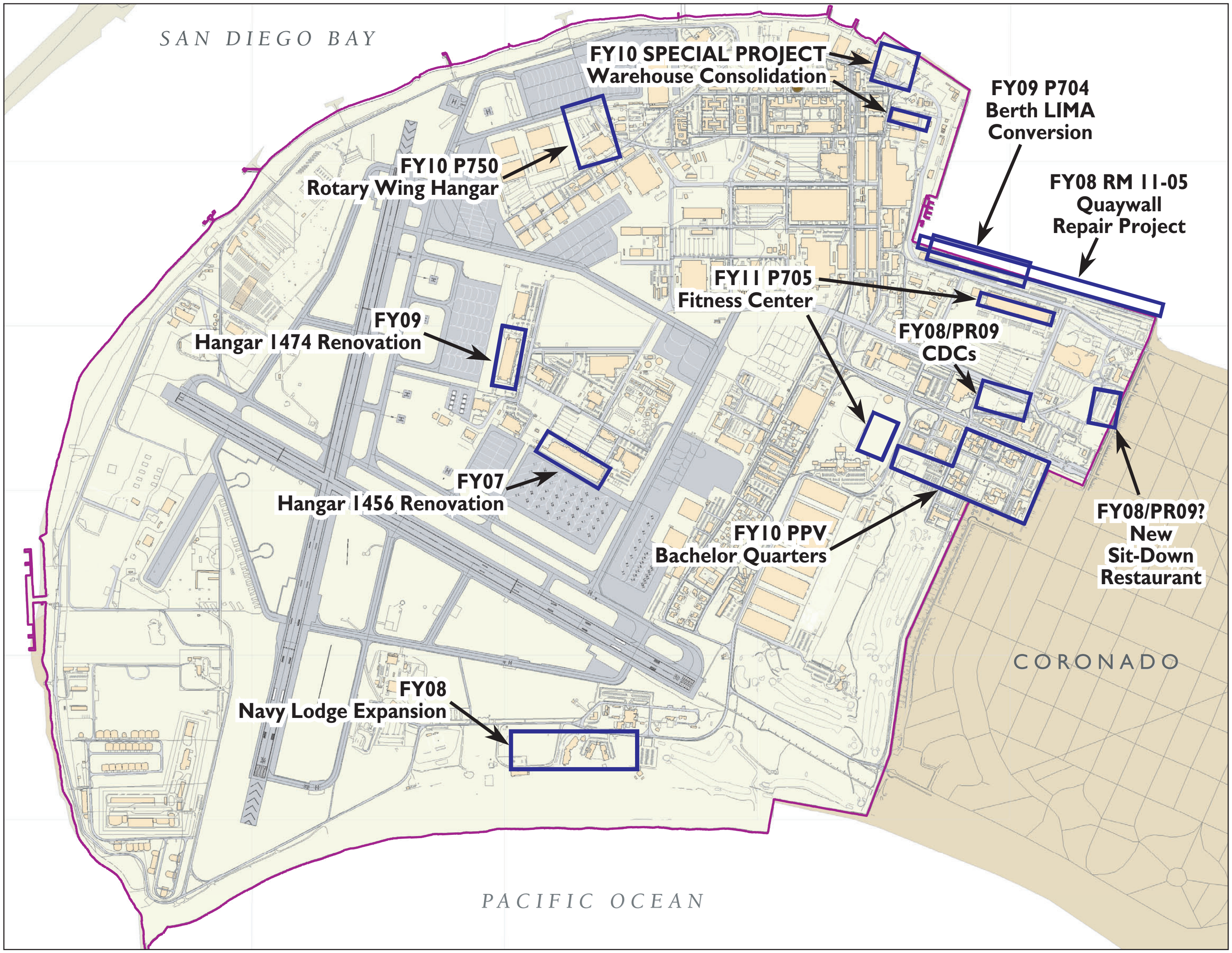


Figure 6.1-1
Present and Reasonably Foreseeable Future Actions on NASNI

6.1.4 MILCON P-705: NASNI Fitness Center Consolidation Project

Current fitness facilities are located in 3 separate buildings, one of which (B651) is an antiquated, termite-infested, converted warehouse facility. MILCON P-705 would demolish the 203,000 square-feet of antiquated fitness facilities and inadequate CVN transit warehouse facilities and construct a combined 90,000 square-foot fitness facility and 15,000 square-foot Liberty Center that would support total installation loading. The project includes additional HVAC required by design criteria, and the addition of Single Sailor program requirements. Adequate fitness facilities are required to support CNOs culture of fitness initiative, to enhance Sailor quality of service. Following demolition of B651 under P-705, the site would be used for lay-down and parking associated with operations along the quaywall. This project is currently unprogrammed. If programmed, estimated award would be 2014 and completion would be the end of 2015. Appropriate NEPA documentation will be prepared.

6.1.5 NASNI Bachelor Quarters

A public-private venture bachelor quarters project is being proposed for 2010. The projected bachelor quarters deficit for NASNI, to include all 3 carriers and based on projected E-1 to E-3 requirement, is approximately 1,400 beds. Additionally, there are existing bachelor quarters facilities, totaling 1,000 existing beds, that are in need of replacement. The project would demolish the 1,000 inadequate beds, convert one facility to meet current requirements and build 2,285 new beds. The Navy is currently evaluating the feasibility of addressing current and projected bachelor quarters requirements through execution of a follow-on phase to the pilot San Diego unaccompanied housing privatization project executed in December 2006. As a result, this project may be adjusted in future program/budget cycles. If awarded by a September 2009 deadline, construction would start approximately mid-2010. Appropriate NEPA documentation will be prepared.

6.1.6 MILCON P-750: NASNI Rotary Wing Hangar

Project FY10 P-750 will provide a 112,000 square foot squadron level rotary wing maintenance facility and a 160,000 square foot parking apron to bed-down 3 helicopter squadrons moving to NASNI between 2010 and 2013. The project will also realign existing rotary wing apron parking to allow for the additional helicopters. Currently, 135 H-60 type aircraft in 14 squadrons are assigned to NASNI. These squadrons utilize approximately 560,000 square feet in 6 hangars including a work-around to share space in a WWII, fixed wing hangar not properly configured for helicopter maintenance. By 2013, the helicopter loading at NASNI will have increased to 17 squadrons for a total of 189 helicopters and require an additional 112,000 square feet of maintenance facilities. The project is currently unprogrammed. If programmed in 2010, the estimated award would be 2010 with completion in 2011. Appropriate NEPA documentation will be prepared.

6.1.7 Special Projects RM05-06 and RM201-07: NASNI Hanger Renovations

Hanger renovation projects FY07 RM05-06 and FY09 RM201-07 will repair and upgrade existing rotary wing Hangars 1456 and 1474 at NASNI. These repairs and upgrades support the Helicopter Concept of Operations (Helo CONOPS) transition platform to MH-60 R/S (Romeo/Sierra) and repair/replace the severely deteriorated and aged utility and infrastructure systems. Repairs will include electrical, mechanical, plumbing, fire alarm and suppression systems, hangar doors, hangar flooring, and roofing, including refurbishment of exposed exterior steel trusses. These projects also include repairs to damaged and worn interior finishes, such as ceilings, walls, and floors. The Hangar 1456 renovation is currently underway and is estimated to be completed in 2009. A CATEX was completed. The Hangar 1474 renovation is estimated to be awarded in 2009 and completed the end of 2010. A CATEX is to be prepared.

6.1.8 NASNI Navy Lodge Expansion and Cottages

Project FY08 Navy Exchange demolishes 2 existing lodge buildings containing 90 rooms and constructs one 4-story lodge building containing 220 new lodge rooms in their place, and builds a swimming pool. The morale, welfare and recreation (MWR) Cottages project constructs 10 duplex cottages, containing 40 rooms total. In support of the MWR project, Building 710 (13,691 square feet) is scheduled for demolition under a separate demolition/consolidation project. The footprint will convert to beach. Extensive measures are being taken to protect species habitat on the beach. Both projects are estimated to be awarded in 2008 and completed by the end 2010. An EA was completed, and a FONSI signed January 2006. A Continuing Environmental Review document was signed January 2008.

6.1.9 NASNI Navy Exchange Restaurant

The Navy Exchange is proposing to enter into an agreement with a private entity in FY08 or FY09 to construct a new 6,000 square foot name brand casual dining facility, including outside seating, with 158 parking stalls and landscaping on 1.68 acres of previously disturbed land. The project is located on a former McDonalds parking lot and will be designed to minimize noise and light to off-base residents. The project is estimated to be awarded in 2009 or earlier and completed in 2010. A CATEX was completed.

6.1.10 MILCON P-135: Upgrades to Magnetic Silencing Facility for Advanced Degaussing Systems (Naval Base Point Loma)

MILCON P-135 would involve upgrading the deperming and measurement systems at the deperming and Electromagnetic Roll (EMR) piers, the vessel mooring and fendering systems at the deperming pier, and the power supply system. The upgrades would involve removal, demolition, construction, and cable placement activities. Demolition and construction of onshore buildings associated with the Magnetic Silencing Facility would also occur. In addition, marine mammals located in floating pens at the adjacent explosive ordnance disposal pier would require temporary relocation to the SPAWAR dolphin pens during construction. The SPAWAR dolphin pens would also be reconfigured to add additional mammal pens, and a new finger pier would be constructed adjacent to the mammal pens. Construction is planned for 2008 and 2009. An EA has been prepared for this project and a FONSI signed.

6.1.11 MILCON P-793V: Relocation of EMR and AMIMS Systems to San Diego (Naval Base Point Loma and Naval Base Coronado)

MILCON P-793V would involve installation of an EMR system and reuse of the previously decommissioned EMR boat slip at the Naval Submarine Base located at Naval Base Point Loma (NBPL), and installation of an assessment and identification of mine susceptibility multi-influence measurement system (AMIMS) both onshore and offshore at the Naval Base Coronado Silver Strand Training Complex. The action at NBPL would include demolition, construction, utility upgrades, and cable placement activities. The action at Naval Base Coronado would include constructing a pile-supported platform for the AMIMS approximately 1.24 miles offshore of the training complex; constructing a 1,000 square-foot building onshore; and various cable and conduit placement activities. Construction is planned for late 2008 through early 2009. An EA has been prepared for this project and a FONSI signed.

6.1.12 MILCON P-118: Pier 5002 Sub Fender Installation (Naval Base Point Loma)

MILCON Project P-118 would involve modification of Submarine Pier 5002, south of the P-135 project area, at Naval Base Point Loma to allow mooring of submarines next to the maintenance building without the need for material packaging and transport between the pier and building or interruption of weapons loading activities. The principal modification would be removal of deteriorating timber piles and replacement with composite piles that have an expected life of 50 years. Supplemental foam-filled fenders would be interspersed between the submarine fenders to accommodate surface ships. There would be no increase in the pier footprint and no dredging would be required. New power supply booms would be needed to route shore power to submarines moored at the pier and extra communications lines would be provided. All other utilities are already located at the site. Project activities are currently in progress. A CATEX has been prepared for this project. Work is planned for 2008-2009.

6.1.13 Improved Navy Lighterage System Pier (NAB Coronado, Naval Base Coronado)

The Improved Navy Lighterage System (INLS) project entails constructing adequate waterfront command and control facilities for amphibious operations and training at NAB Coronado main base. This would consist of an INLS lift/launch pier facility, including new pier construction and upgrades to existing Piers 16, 18, and 19; road upgrades; increased storage yard space in conjunction with adequate maintenance and operational storage facilities; and quaywall repairs. An EA and FONSI have been prepared for this project, and construction is underway.

6.1.14 Fiddler's Cove Marina Repairs and Improvements Project (NAB Coronado, Naval Base Coronado)

The Fiddler's Cove Marina Repairs and Improvements Project would be conducted by MWR to restore serviceability of deteriorated marina facilities at the existing Fiddler's Cove Marina, NAB Coronado, Naval Base Coronado. The purpose of the Proposed Action is to provide a functional multi-use, year-round recreational facility in San Diego County to support the military's regional recreational needs. The Proposed Action is needed to restore deteriorated marina facilities including slips and docks at Fiddler's Cove, replace the floating wave attenuation system, control erosion and stabilize the shoreline, and enhance/expand existing recreational functions of the marina. Construction is currently in progress. No in-water work would be planned during the least tern nesting season. An EA and FONSI have been prepared for this project.

6.1.15 Mobile Security Forces and Naval Special Clearance Team-One Pier and Boat Ramp (Naval Base Point Loma)

Reconfigure, Upgrade, and Construct Buildings and Facilities for Naval Special Clearance Team ONE (Naval Base Point Loma) RM 12-06 would relocate the Marine Mammal Systems Platoon from current substandard facilities in Buildings 19, 43, and 47 near the deperming pier at Naval Base Point Loma to an upgraded location at Building 69, approximately 0.5 miles north near the proposed marine mammal pier. The project would convert Building 69, an existing 6,132 square foot warehouse, into a 8,529 square foot dive locker/ordnance operations facility that would include construction of a second floor mezzanine. The facility also would include a fish house, fish preparation area, diver re-warming area, and a space for scuba equipment and drying cages. Construction is planned for 2008-2009. No in-water construction activities would be involved. A CATEX has been prepared. NF 14-06 would construct a 11,440 square foot secure storage building for 4 low visibility craft (LVC) used by the Marine Mammal System Platoon. Additionally, 3 marine mammal holding pools and an associated water intake, filtration, and discharge system would be relocated from the deperming pier area to a site adjacent to the LVC building.

Construction and relocation activities are planned for 2008-2009. No in-water construction activities would be involved. A CATEX has been prepared.

6.1.16 MILCON P-327: Pier 12 Replacement (Naval Base San Diego)

MILCON P-327 would involve demolition of an inadequate existing pier (Pier 12), construction of fish enhancement structures using concrete debris from pier demolition, dredging in berthing and approach areas for a new pier, dredged material disposal at an approved ocean disposal site, construction of a new pier, and provision of associated pier utilities. An EA is being prepared for this project.

6.1.17 MILCON P-440: Pier 14 Demolition and Pier 8 Redevelopment (Naval Base San Diego)

MILCON P-440 would involve demolition of 2 inadequate existing piers (Pier 8 and Pier 14), construction of a new pier (Pier 8) and associated pier utilities at Naval Base San Diego, California. The new Pier 8 would be constructed as a single-deck, concrete berthing pier that represents an increase in area of about 2.18 acres when compared to the existing Pier 8. It is estimated that project construction would commence in 2012 and be completed by 2013. An EA is being prepared for this project.

6.1.18 Hotel del Coronado Condominium Project

This 205-unit condominium project will be developed at 1050 Orange Avenue. A first phase of the project (29 units) was completed in July 2007, a second phase of 50 units was completed in September 2007, and the remaining 126 units are planned for construction.

6.1.19 Regatta Bay Condominium Project

This mixed-use project at 120-140 C Avenue would have approximately 118 parking spaces in 2 levels of underground parking, and 3 levels of habitable space providing 16 condominium units. The ground floor is designed for commercial use, including 6,800 square feet of commercial/retail space, 5,300 square feet of general office space, and 1,800 square feet of tradesman or contractor space.

6.1.20 Coronado City Views Condominium Project

An 11-unit condominium, with 6,900 square feet of commercial/retail and 1,600 square feet of tradesman or contractor space to be developed at 131-145 Orange Avenue.

6.1.21 National City Marina Construction

The San Diego Unified Port District (SDUPD) is constructing a marina in National City, California, to improve coastal access to San Diego Bay and create additional recreational amenities. The marina is located next to the Sweetwater River Channel at the foot of Marina Way, where Sweetwater Channel enters San Diego Bay. The project involved excavation of 638,000 cy of material to construct the marina basin, construction of a 250-slip floating concrete dock system. The project also involved construction of 8,634 square feet of marina buildings including shower and laundry facilities, a workout room, lounge and community room, resort Jacuzzi, delicatessen and an aquatic center. Other features of the project include construction of a public promenade and 223 additional parking spaces. An Environmental Impact Report (EIR) was completed for the project per state regulations in 1994, and addended in 2001, 2002, and 2003. Currently, the project is in final stages of construction, expected to be completed in 2008.

6.1.22 North Embarcadero Alliance Visionary Plan (NEVP) for the Broadway Pier Cruise Ship Terminal and Infrastructure Improvement Project

The proposed project is located on a 5.7-acre site at the northeast corner of Harbor Drive and Broadway Street, directly across from the San Diego Bay and the B Street Pier Cruise Ship Terminal in San Diego, California. To supplement current homeport needs and future needs, the proposed project includes infrastructure improvements to the Broadway Pier that would:

- Provide a new cruise ship terminal building of approximately 51,550 square feet.
- Improve the security and efficiency of cruise ship passenger embarking and disembarking processes.
- Create a pedestrian walkway that leads to an enhanced public open space plaza at the west end.
- Pier providing views of San Diego Bay consistent with the Maritime Transportation Security Act of 2002 and cruise ship terminal operations.
- Enhance access to and from Broadway Pier and Harbor Drive.
- Enhance vehicular circulation on Broadway Pier.
- Provide enhanced paving on Broadway Pier using concrete, wood, pavers and/or other materials.
- Improve signage including informational, identification, regulatory, directional and gateway signs.
- Relocate utility connections.
- Improve public access and public use of the pier on non-cruise ship days.

An EIR was certified in April 2000, and approved in March 2001. An Initial Study and Addendum to the Master EIR were completed per state regulations in 2007. The project received final approval in January 2008 and is currently awaiting funding.

6.1.23 Glorietta Bay Marina Rebuild

The Glorietta Bay Marina Rebuild project is the final phase of the Glorietta Bay Master Plan and is designed to improve pedestrian accessibility to the bay. The primary components of this project include dredging portions of the Glorietta Bay Marina; replacing and reconfiguring the deteriorated marina docks, shoreline rip rap and boat rental/ public dock; creating an eelgrass restoration site; removing the existing over-water marina support building and replacing the reconstructed building completely on the landside; constructing an adjacent promenade/sidewalk and seat wall; constructing a Bay Route bicycle path extension from Tenth Street to San Luis Rey Avenue; and realigning Strand Way while reconfiguring an existing parking lot to a shoreline pocket park and parking lot. A Negative Declaration, per state regulations, was prepared and adopted for the project by the City of Coronado. Construction is currently underway and is expected to be completed in late 2008 or early 2009.

6.1.24 State Routes (SR) 75/282: Transportation Corridor Project Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR)

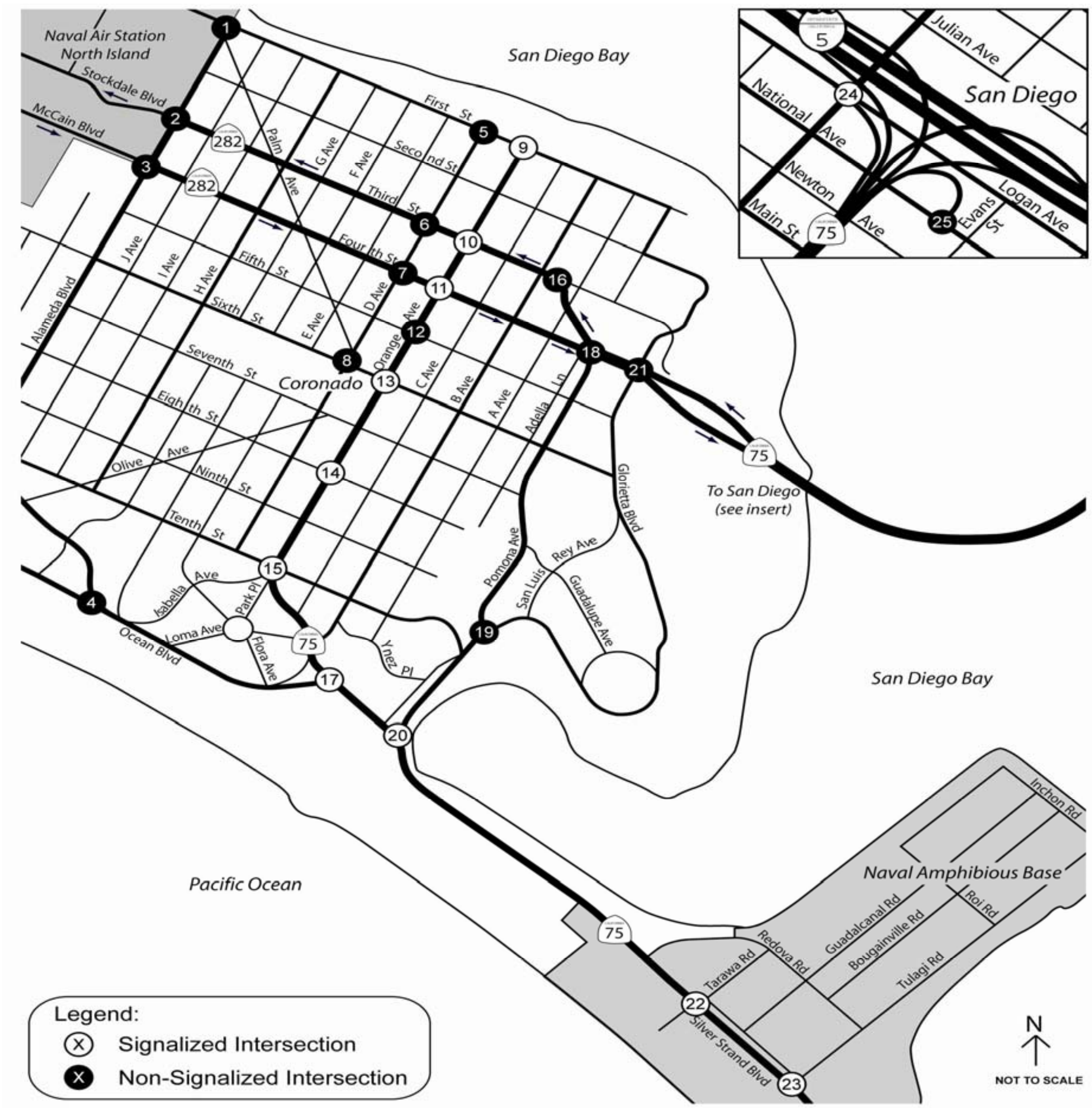
The SR 75/282 TCP EIS is a local transportation proposal of potential future transportation system improvements and alternatives to address traffic and congestion on the SR 75/282 transportation corridor, the main traffic arteries into Coronado. The City of Coronado and the CALTRANS, as the project's action proponents, are the local agencies with executive authority over local transportation systems, design and solutions. The project combines an engineering study, a Project Report, with an environmental planning document, an EIR/EIS. The Navy is a Cooperating Agency for the development of the EIS, supplying specialized expertise on AT/FP, security, and federal (military) land-use polices. The SR 75/282 TCP EIS analyzes the entire system and offers a series of potential solutions including TDM/TSM, Grade Separations, Cut and Cover Tunnels, and Twin Bore Tunnels. The purpose of this project is for local transportation authorities to study the traffic system and select a set solution that is technically feasible and able to be implemented by the 2 action proponents, the City of Coronado and CALTRANS. The SR 75/282 TCP EIS is in the development process and a specific transportation improvement project or series of projects has not yet been selected. This SEIS also studies traffic, as an impact from a military homeporting point of view, and offers solutions that would be complimentary to those that are identified and implemented in the future by the City of Coronado and CALTRANS.

6.2 TRAFFIC AND TRANSPORTATION

6.2.1 Description of Geographic Study Area

The geographic area for the evaluation of cumulative impacts to traffic circulation and transportation networks (Figure 6.2-1) corresponds to the same area encompassed by the 2008 Traffic Study (as described in Chapter 3.1 and Appendix C). The 2008 Traffic Study evaluated potential cumulative effects in this area based on projections of traffic conditions in the year 2015.

Figure 6.2-1 Geographic Study Area for Cumulative Impacts to Traffic and Transportation



6.2.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

For purposes of the traffic-related cumulative impacts, only nearby projects with direct local traffic implications have been considered. City of Coronado staff provided a list (as of June 2007) of cumulative projects that are considered to be approved, but not yet completed or occupied. The following is a selected subset of projects considered in the cumulative traffic impact analysis.

1. Hotel del Coronado (1050 Orange Avenue): 205 condominium units, 79 of which were completed in 2007.
2. Regatta Bay LLC (120-140 C Avenue): 16-unit condominium complex plus mixed commercial/office and tradesman space.
3. Coronado City Views LLC (131-145 Orange Avenue): 11-unit condominium complex plus commercial/retail, and tradesman space.

All other projects in the City's list were either remodels or were not expected to generate a significant amount of additional traffic. The traffic volumes associated with these other projects were already included as growth in background traffic as part of the traffic forecasts.

The increased traffic in Coronado that is expected to be generated by the 3 cumulative projects above is approximately 2,872 ADT, which includes an estimated 75 trips during the NASNI a.m. peak hour (6:15 – 7:15 A.M.) and 122 trips during the NASNI P.M. peak hour (2:30 – 3:30 P.M.). Since the trip generation rates used to generate traffic estimates for these community projects are for typical community peak hours, the original peak hour traffic estimates were reduced by 50 percent to approximate traffic generated during the earlier military peak hours. The trips generated by the standard trip generation rates would have overestimated the amount of traffic expected during the earlier NASNI peak periods analyzed in this study. No reduction was applied to estimate the total daily traffic volume associated with the cumulative projects.

6.2.3 Cumulative Impact Analysis

The cumulative impact assessment in the 2008 Traffic Study (Appendix C) estimated the traffic conditions of the street network assumed to be in place by 2015 with 3 homeported CVNs in port and staggered working hours. This scenario includes the evaluation of 2007 baseline traffic volumes plus traffic associated with approved or pending projects anticipated to be constructed in the near term and growth in background traffic. Forecasted traffic volumes for 2015 were based on the 2030 SANDAG regional travel forecast model and further adjusted through traffic growth interpolation to reflect the anticipated incremental growth between 2007 baseline conditions and year 2015.

6.2.3.1 2015 Intersection Analysis

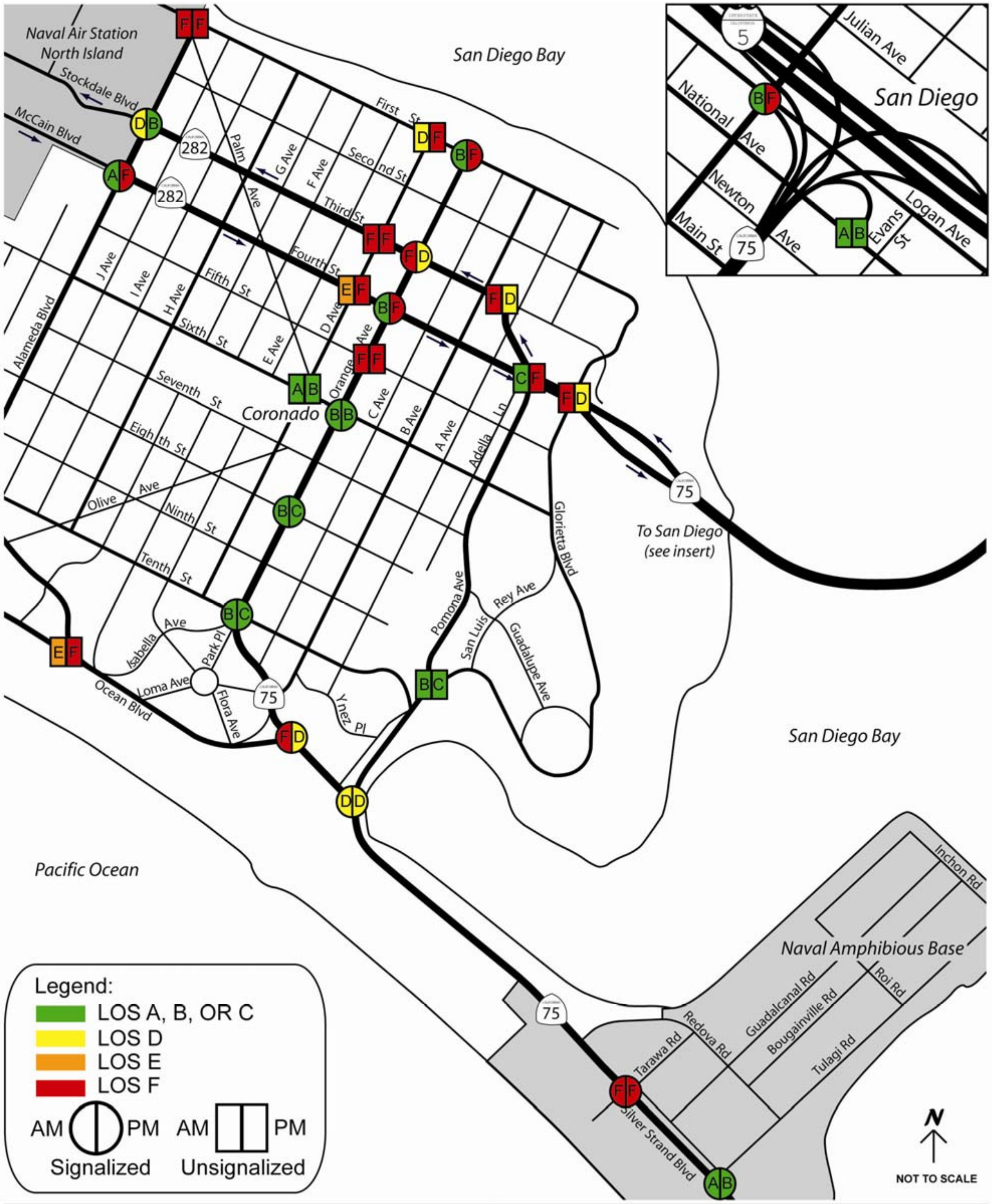
For consistency with the 2007 baseline conditions evaluated in the 2008 Traffic Study (described in Section 3.1), the same 25 intersections were evaluated for potential cumulative effects (Figure 6.2-1). The intersection LOS and associated vehicle delay that are projected to occur under cumulative conditions in the study area are summarized in Table 6.2-1. Intersections that are forecast to operate deficiently in 2015 are highlighted in Figure 6.2-2. Under cumulative conditions with 3 CVNs in port with staggered work hours, 16 intersections are forecast to operate at deficient LOS (LOS E or F), 9 of which are unsignalized.

Table 6.2-1 Cumulative Conditions (2015) Peak Hour Intersection LOS Summary

Intersection	Traffic Control	Peak Hour	3 CVNs with Staggered Work Hours	
			Delay[1]	LOS
Alameda Blvd. / First St.	AWS	AM PM	235.1 98.0	**F** **F**
Alameda Blvd. / Third St.	TWS	AM PM	37.8 10.2	D B
Alameda Blvd. / Fourth St.	AWS	AM PM	6.5 83.5	A **F**
Alameda Blvd. / Ocean Blvd.	OWS	AM PM	35.1 201.6	**E** **F**
D Ave. / First St.	TWS	AM PM	26.4 147.7	D **F**
D Ave. / Third St.	TWS	AM PM	ECL 61.6	**F** **F**
D Ave. / Fourth St.	TWS	AM PM	47.4 ECL	**E** **F**
D Ave. / Sixth St.	AWS	AM PM	8.2 10.5	A B
Orange Ave. / First St.	S	AM PM	10.7 138.6	B **F**
Orange Ave. / Third St.	S	AM PM	124.5 43.4	**F** D
Orange Ave. / Fourth St.	S	AM PM	18.2 168.3	B **F**
Orange Ave. / Fifth St.	TWS	AM PM	96.4 ECL	**F** **F**
Orange Ave. / Sixth St.	S	AM PM	14.6 19.1	B B
Orange Ave. / Eighth St.	S	AM PM	13.3 22.2	B C
Orange Ave. / Tenth St.	S	AM PM	18.3 26.4	B C
Pomona Ave. / Third St.	OWS	AM PM	102.7 26.0	**F** D
Orange Ave. / R.H. Dana Pl.	S	AM PM	133.5 43.6	**F** D
Pomona Ave. / Fourth St.	OWS	AM PM	24.0 650.0	C **F**
Pomona Ave. / Glorietta Blvd.	TWS	AM PM	10.7 18.1	B C
Pomona Ave. / Silver Strand Blvd.	S	AM PM	40.0 41.8	D D
Glorietta Blvd. / Fourth St.	OWS	AM PM	126.4 26.7	**F** D
Silver Strand Blvd. / Tarawa Rd	S	AM PM	291.4 96.5	**F** **F**
Silver Strand Blvd. / Tulagi Rd	S	AM PM	3.8 12.3	A B
Cesar E Chavez Pkwy / Logan Ave.	S	AM PM	18.6 128.1	B **F**
National Ave. / SR-75 Off-Ramp	OWS	AM PM	10.0 11.4	A B

Notes: [1] Delay is measured in seconds per vehicle.
AWS = All-Way Stop TWS = Two-Way Stop OWS = One-Way Stop S = Signalized
ECL = Exceeds Calculable Limit, reported when delay exceeds 180 seconds.

Figure 6.2-2 Cumulative (2015) Intersection Levels of Service



Intersections found to be deficient in 2015 include those found to be deficient in the 2007 baseline condition (see Section 3.1) but result in somewhat higher delay. Compared to baseline conditions, 2 additional intersections at Orange Avenue / First Street and at Orange Avenue / Third Street are forecast to operate deficiently under 2015 cumulative conditions.

The 1999 FEIS also evaluated 2015 conditions based on SANDAG traffic projections available during the time the study was being done. Table 6.2-2 shows the results of the 1999 FEIS analysis of cumulative conditions (2015) for the intersections studied in the FEIS, compared to corresponding 2015 results from the 2008 Traffic Study.

Table 6.2-2 Year 2015 Intersection LOS Cumulative Effects Comparison: 1999 FEIS Projection and 2008 Traffic Study Projections

Intersection	Peak Hour	1999 FEIS	2008 Traffic Study
Orange Ave. / First St.	AM PM	B B	B **F**
Orange Ave. / Third St.	AM PM	C C	**F** D
Orange Ave. / Fourth St.	AM PM	D **F**	B **F**
Orange Ave. / R.H. Dana Pl.	AM PM	C D	**F** D
Alameda Blvd. / Third St.	AM PM	n/a n/a	D B
Alameda Blvd. / Fourth St.	AM PM	B **F**	A **F**

Compared to the 1999 FEIS cumulative analysis, the projected intersection LOSs under the current cumulative analysis are generally worse except at Orange Avenue / Fourth Street, where the morning peak is projected to be better (LOS B vs. LOS D) in the current analysis, and Alameda Boulevard / Fourth Street, where the morning peak LOS is projected to improve to LOS A. Both the 1999 FEIS and current cumulative analysis project LOS F conditions during the afternoon peak period at Orange Avenue / Fourth Street and Alameda Boulevard / Fourth Street.

6.2.3.2 Cumulative Conditions (2015) Roadway Segment Analysis

Cumulative roadway segment LOS and the volume-to-capacity ratios are summarized in Table 6.2-3. Under cumulative conditions, 12 roadway segments are found to be deficient LOS (LOS D or worse) with 3 carriers in port. Roadway segments found to be deficient in the cumulative condition are the same as in the 2007 baseline condition with the addition of one segment on Orange Avenue from Tenth Street to R.H. Dana Place.

It should be noted that staggered work hours do not affect roadway segment analysis and only affect the traffic volumes during the peak periods, because the incremental daily traffic volumes generated from 3 CVNs in port would be the same over a 24-hour time period with or without staggered work hours.

Table 6.2-3 Cumulative (2015) Conditions Roadway Segment LOS Summary

Location		Capacity	3 CVNs		
			ADT	V/C[1]	LOS
First St.	Alameda Blvd. To H Ave.	8,000	7,902	0.988	**E**
	H Ave. to Orange Ave.	8,000	9,453	1.182	**F**
Third St.	Alameda Blvd. to H Ave.	30,000	20,346	0.678	C
	H Ave. to Orange Ave.	30,000	21,571	0.719	C
	Orange Ave. to Pomona Ave.	30,000	42,453	1.415	**F**
Fourth St.	Alameda Blvd. to H Ave.	30,000	18,735	0.625	C
	H Ave. to Orange Ave.	30,000	20,115	0.671	C
	Orange Ave. to Pomona Ave.	30,000	35,311	1.177	**F**
Sixth St.	H Ave. to Orange Ave.	8,000	2,305	0.288	A
Ocean Blvd.	Marina Ave. to Alameda Blvd	15,000	8,430	0.562	C
	Alameda Blvd. to Orange Ave.	15,000	10,868	0.725	**D**
Alameda Blvd.	First St. to Third St.	15,000	5,080	0.339	B
	Third St. to Fourth St.	15,000	5,717	0.381	B
	Fourth St. to Sixth St.	15,000	8,782	0.585	C
	Sixth St. to Tenth St.	15,000	5,904	0.394	B
	Tenth St. to Ocean Blvd.	15,000	5,496	0.366	B
Orange Ave.	First St. to Third St.	30,000	14,093	0.470	C
	Third St. to Fourth St.	40,000	26,719	0.668	C
	Fourth St. to Sixth St.	40,000	34,575	0.864	**D**
	Sixth St. to Tenth St.	40,000	35,322	0.883	**E**
	Tenth St. to R.H. Dana Pl.	40,000	30,034	0.751	**D**
	R.H. Dana Pl. to Pomona Ave.	40,000	36,589	0.915	**E**
Silver Strand Blvd (SR-75)	Pomona Ave. to Tarawa Rd	40,000	40,620	1.016	**F**
	Tarawa Rd. to Tulagi Rd.	40,000	26,868	0.672	C
	Tulagi Rd. to Leyte Rd.	40,000	31,723	0.793	**D**
Pomona Ave.	Fourth St. to Glorietta Blvd	15,000	6,913	0.461	B
	Glorietta Blvd. to Silver Strand Blvd.	15,000	13,675	0.912	**E**

[1] V/C denotes volume-to-capacity ratio

6.2.4 Potential External Intersection Improvements

It is important to note that the homeporting of 3 CVNs adds only a few trips to the area roadway network that were not already evaluated when a third carrier was assessed in the 1999 FEIS. For example, the 1999 FEIS assessed 3 CVNs in port assuming 3,115 Sailors per ship while the 2008 Traffic Study assesses an updated number using 3,217 Sailors per CVN. As the resulting vehicular trips are within 3-4 percent of one another, the potential improvements presented herein address the cumulative traffic impacts from the overall growth in traffic on the study area transportation network (related to both NASNI and community activities).

When considering ways to mitigate cumulative effects in a project area, CEQ policy is to analyze the cause and effect relationship as to which effects may be minimized by designing mitigations to address that primary pathway. This calls for identification of the direct effects on a specific resource, in this case the Navy traffic directly identifiable on the main arteries onto and off of NASNI. An identifiable impact from NASNI-related commuters may be identified from Orange Avenue forward onto NASNI. During both A.M. and P.M. peak hours, there are 5 identifiable intersections where a cause and effect relationship may be studied and feasible mitigations designed. These include:

1. First Street and Alameda Boulevard
2. Fourth Street and Alameda Boulevard
3. First Street and Orange Avenue
4. Third Street and Orange Avenue
5. Fourth Street and Orange Avenue

These intersections were identified as appropriate candidates for potential traffic improvements because NASNI is the logical destination for commuters using these intersections during the A.M. peak period, with a similar reverse flow logic applied to commuters exiting NASNI in the P.M. peak period. As such, these intersections offer the most favorable application of possible mitigation strategies for directly addressing the impact of NASNI commuters on local roads. The performance of roadway segments analyzed in Section 6.2.3.2 is heavily influenced by the performance of these intersections; therefore, potential improvement strategies focus on the intersections.

These intersection mitigations were designed as potential traffic improvements using enhancement strategies that focus on the pathways where the most achievable reduction in impact might be applied, and therefore are considered the most effective for reducing cumulative effects. Since these improvements represent physical modifications to road network infrastructure, and are intended to address cumulative traffic conditions, they are not related specifically or exclusively to NASNI traffic associated with any particular number of CVNs in port at the same time.

Table 6.2-4 lists potential traffic improvement measures based on whether right-of-way acquisition is required. Table 6.2-4 also identifies the resulting effect on traffic conditions at key intersections along primary access routes serving NASNI as they relate to the potential traffic improvements. These improvements would have beneficial results in both the short and long term and would reduce cumulative effects on traffic.

As shown in Table 6.2-4, the identified improvements would result in acceptable LOS conditions at all but 1 of the 5 intersections (Fourth Street and Orange Avenue). The projected cumulative traffic flows at the intersection of Fourth Street / Orange Avenue cannot achieve LOS D or better conditions through intersection widening measures alone. The City of Coronado has been advocating further studies of improvements that involve grade separation options for this intersection. While the incremental traffic contribution of the CVN does not require these improvements, implementation of the grade separation option would improve traffic operations at the Orange Avenue intersections with Third and Fourth Avenues to acceptable LOS conditions.

Each of these potential improvements is under the jurisdiction of either the City of Coronado or CALTRANS and would require funding and implementation through the appropriate agencies. The local funding of identified potential traffic improvements may sometimes include federal grants or Defense Access Road (DAR) certification for DOD funding, which would be administered through the local transportation organizations. The DOD does not provide funding or management of road improvements outside its property, except as may be authorized by law under the DAR Program, or special legislation. The DAR Program is the only authority the Navy has to address these recommended improvements. The Navy will submit requests for certification under the DAR Program to determine whether DOD can legally pay its fair share of the referenced potential traffic improvements.

Table 6.2-4 External Traffic Improvements Under 2015 Cumulative Conditions

Intersection	Traffic Control	Peak Hour[1]	3 CVNs Staggered		3 CVNs Staggered After Improvements		Description
			Delay[2]	LOS[3]	Delay[2]	LOS[3]	
Options with No Right-Of-Way Acquisition[4]							
First St & Alameda Blvd	AWS	AM	235.1	**F**	3.8	A	Implement inbound only configuration during A.M. peak hour (requires manual traffic control and cone layout during implementation) and manual traffic control during the P.M. peak hour **Figure 6.2-8.**
		PM	98.0	**F**	10.5	B	
Fourth St & Alameda Blvd	S	AM	6.5	A	6.6	A	Add an exclusive eastbound right-turn lane **Figure 6.2-9.**
		PM	83.5	**F**	42.7	D	
First St. & Orange Ave (2 Options)	S	AM	10.7	B	10.7	B	Remove parking along the south side of First St., west of Orange Ave. Re-stripe west leg along First St. to accommodate an eastbound through lane and a shared eastbound right-turn/bicycle lane. (optional diagonal parking along Orange Ave.) **Figure 6.2-3 and 6.2-4.**
		PM	138.6	**F**	8.4	A	
Fourth St & Orange Ave (Option 1)	S	AM	18.2	B	18.0	B	Remove some of the median on the north side of Orange Ave. to accommodate a triple southbound left-turn pocket **Figure 6.2-6**.
		PM	168.3	**F**	131.5	**F**	
Options with Right-Of-Way Acquisition[4]							
Third St & Orange Ave	S	AM	124.5	**F**	46.0	D	Acquire right-of-way on the south side of the east leg along Third St. Re-stripe the east leg along Third St. to accommodate dual-westbound left-turn lanes. Trim down median on south side of Orange Ave. to allow for improved radius for westbound left traffic **Figure 6.2-5**.
		PM	43.4	D	26.7	C	
Fourth St & Orange Ave (Option 2)	S	AM	18.2	B	14.9	B	Acquire right-of-way on the south side of the east leg along Fourth St. Channelize the northbound right-turn lane along Orange Ave. Remove parking along Fourth St to accommodate the northbound right free movement **Figure 6.2-7**.
		PM	168.3	**F**	107.2	**F**	

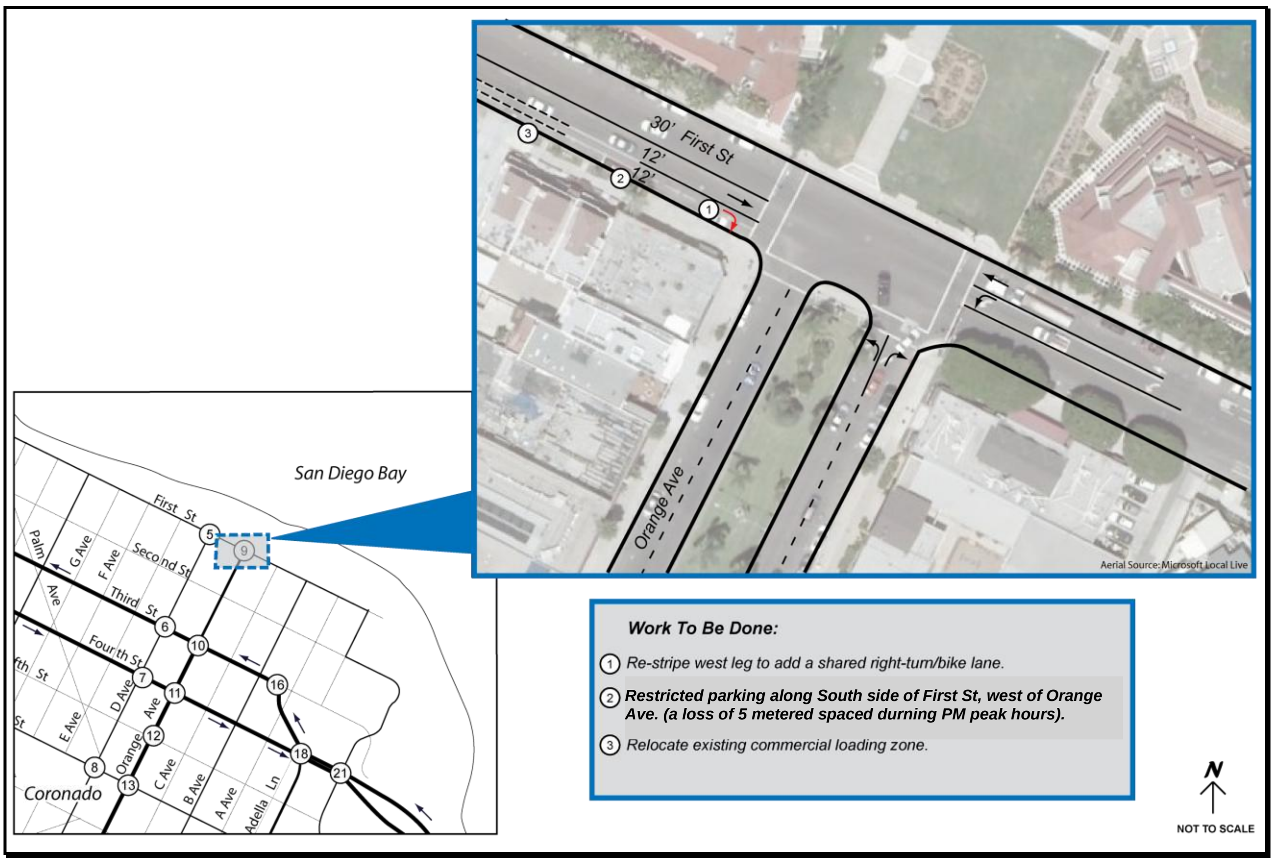
Notes:
[1]Peak Hour (military) refers to morning (6:15 to 7:15 A.M.) and afternoon (2:30 to 3:30 P.M.) periods each weekday during which the bulk of NASNI-related commute trips occur and traffic impacts are likely to be the greatest.
[2]Delay is measured in seconds per vehicle.
[3]LOS = Level of Service, a measure of traffic congestion at an intersection or road segment; rated on a scale of A to F.
[4] Right of Way Acquisition refers to public-owned land that is acquired for public means.
AWS = All Way Stop; S = Signal

There is no guarantee that certification from this program will be obtained. The DAR program itself does not have funds for such improvements. As with other construction programs, the funding for such improvements (if found eligible) would come through the annual appropriations request process. In the event certification by the DAR Program is not obtained, the Navy may seek other funding sources from special legislation.

<u>First Street & Orange Avenue (Option 1)</u>

At this location, two options have been provided. The first option includes restrictions on use of approximately 5 metered on-street parking spaces during the P.M. peak, including a commercial loading zone on the south side of First Street just west of the intersection. The commercial loading zone would be relocated west of the existing alley. With the removal of the parking spaces, an exclusive right-turn lane from First Street to Orange Avenue would be re-striped. Figure 6.2-3 shows a conceptual sketch of the improvements at this intersection.

Figure 6.2-3 Potential Traffic Improvement (External) at First Street and Orange Avenue (Option 1)



Potential benefits of this improvement include:

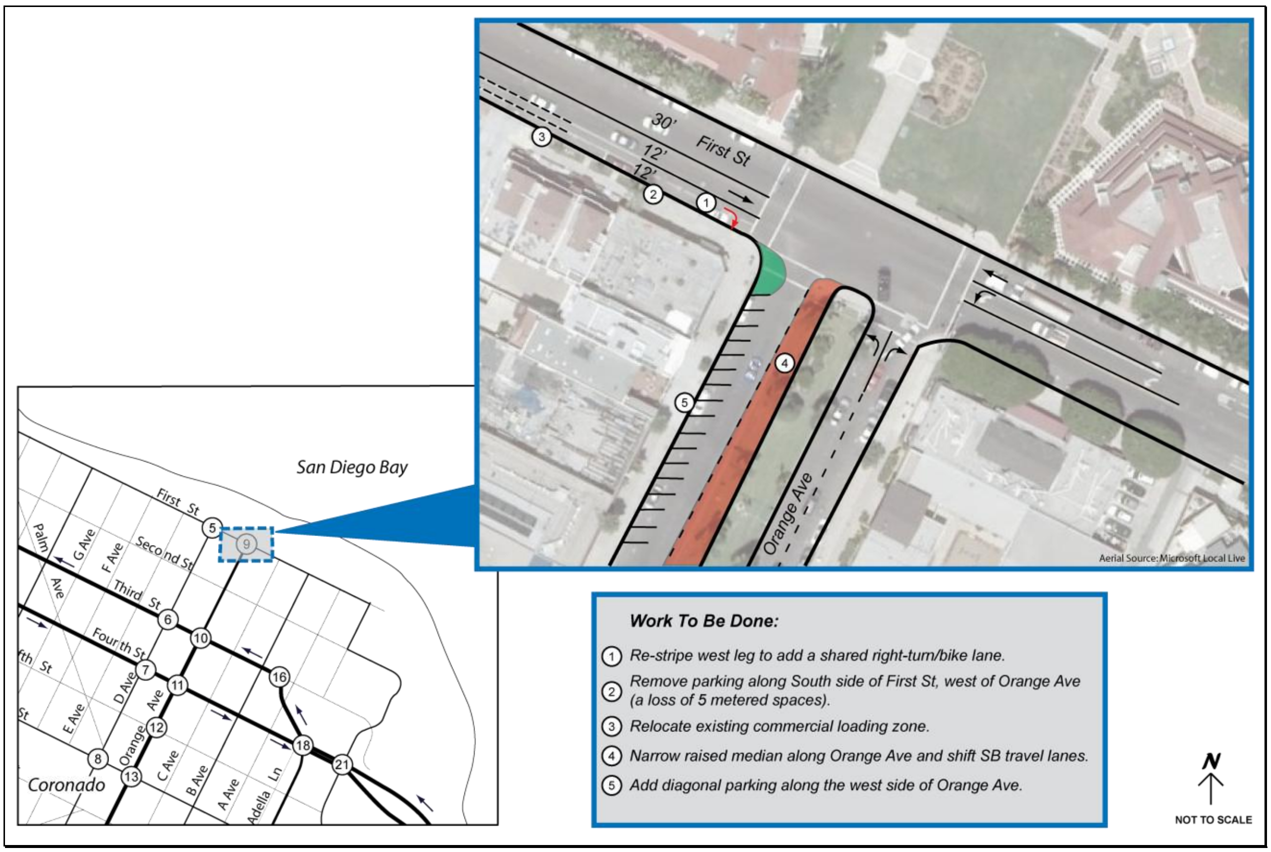
- Improves intersection conditions from LOS F to LOS A in the P.M. peak hour (no LOS change in A.M. peak hour).

Improves intersection performance without permanently losing 5 metered parking spaces, an existing commercial loading area, and the landscaped median.

<u>First Street & Orange Avenue (Option 2)</u>

The second option is similar to the first option, but includes a larger curb return radius to accommodate the larger trucks turning right onto Orange Avenue from First Street and the removal of the 5 metered on-street parking spaces. In addition, approximately 40 diagonal parking stalls along the west side of Orange Avenue between First Street and Second Street would be provided, which creates a net increase of approximately 10 to 15 parking spaces. In order to accommodate the diagonal parking spaces, approximately 12 feet of the existing landscaped median would need to be removed. Figure 6.2-4 shows a conceptual sketch of the improvements at this intersection.

Figure 6.2-4 Potential Traffic Improvements (External) at First Street and Orange Avenue (Option 2)

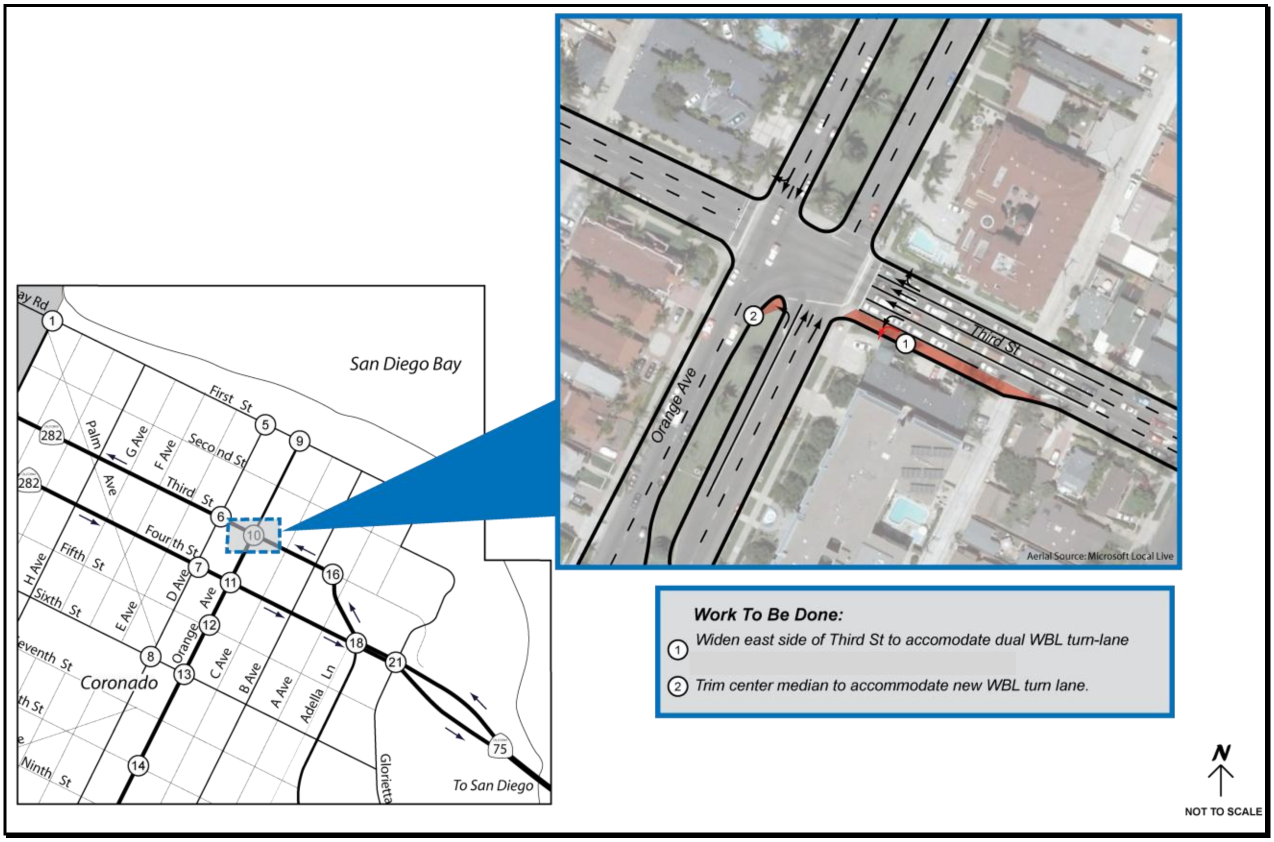


This improvement would improve the intersection LOS to the same extent as Option 1; however, this option would require the permanent loss of 5 metered parking spaces, an existing commercial loading area, and a landscaped median area, which might make it unacceptable to the City of Coronado.

Third Street & Orange Avenue

At this location, the improvement would consist of adding a second westbound left-turn lane from Third Street to Orange Avenue. In order for this to occur, Third Street would need to be widened to the south and would require right-of-way acquisition. In addition, the center median along Orange Avenue would be trimmed to accommodate the turns from the addition of the second left-turn lane. Figure 6.2-5 shows a conceptual sketch of the improvements at this intersection.

Figure 6.2-5 Potential Traffic Improvements (External) at Third Street and Orange Avenue



This improvement would improve A.M. peak hour intersection conditions from LOS F to LOS D but would require right-of-way acquisition, which may make it unacceptable to the City of Coronado.

<u>Fourth Street & Orange Avenue (Option 1)</u>

At this location, 2 options have been provided as mitigation. The first option consists of adding a third southbound left-turn lane from Orange Avenue to Fourth Street. In order to accomplish this mitigation, approximately 12 feet of the existing landscaped median would need to be removed to accommodate the left-turn lane. Field work indicated that no major utilities would need to be relocated and no right-of-way acquisition would be required. Figure 6.2-6 shows a conceptual sketch of the improvements at this intersection.

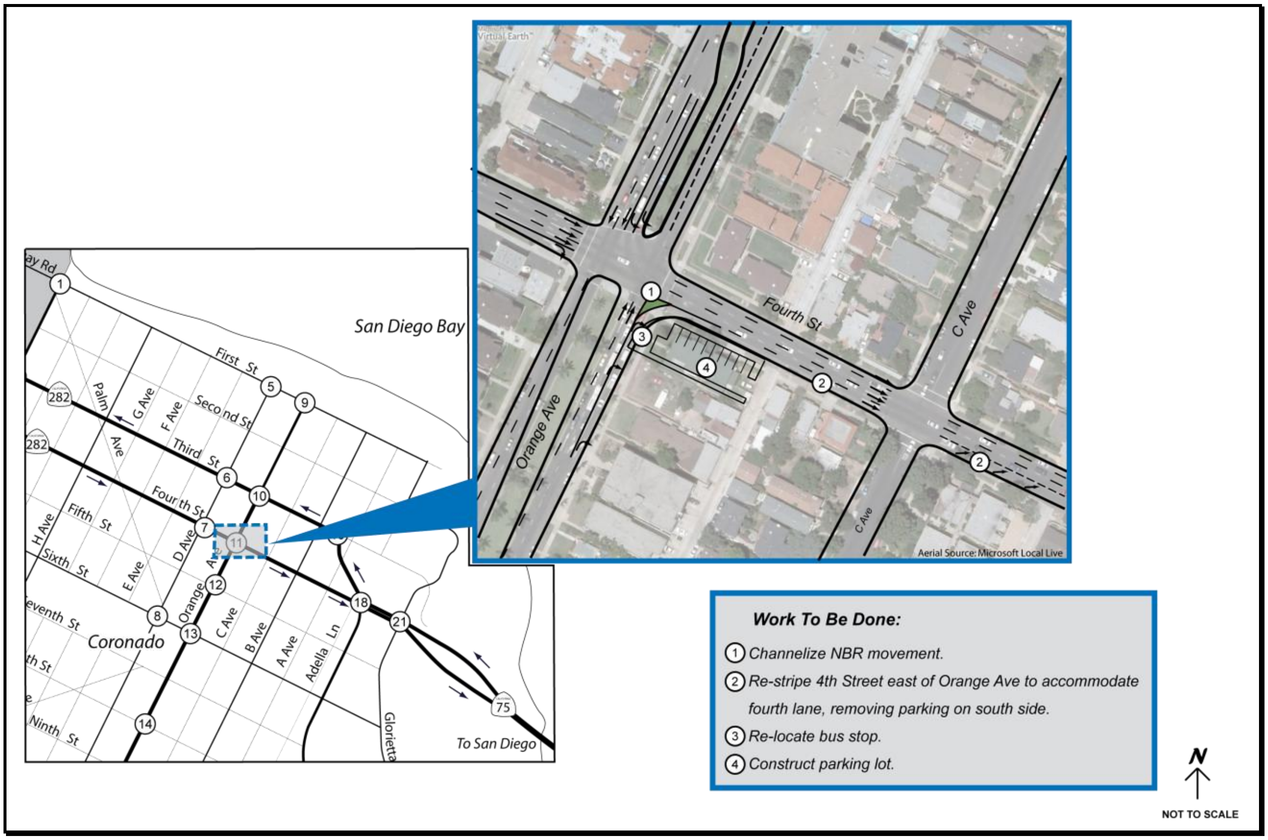
Figure 6.2-6 Potential Traffic Improvements (External) at Fourth Street and Orange Avenue (Option 1)

This option would provide some measure of improvement in time of delay at the intersection, but the overall LOS would remain at LOS F during the P.M. peak hour. It may be more acceptable to the City of Coronado because it requires no right-of-way acquisition.

<u>Fourth Street & Orange Avenue (Option 2)</u>

The second option consists of channelizing the northbound right-turn movement from Orange Avenue to Fourth Street, which would require right-of-way acquisition of the property located at the southeast corner of the intersection. This mitigation would allow vehicles in this movement to get through the intersection without stopping, resulting in fewer delays. To accommodate this mitigation, approximately 14 parking spaces on the south side of Fourth Street between Orange Avenue and C Avenue would be removed to allow for the fourth lane (an acceleration lane on Fourth Street). This parking could be replaced by constructing a surface lot on the acquired property. In addition, the existing MTS bus stop would have to be relocated. Figure 6.2-7 shows a conceptual sketch of the improvements at this intersection.

Figure 6.2-7 Potential Traffic Improvements (External) at Fourth Street and Orange Avenue (Option 2)

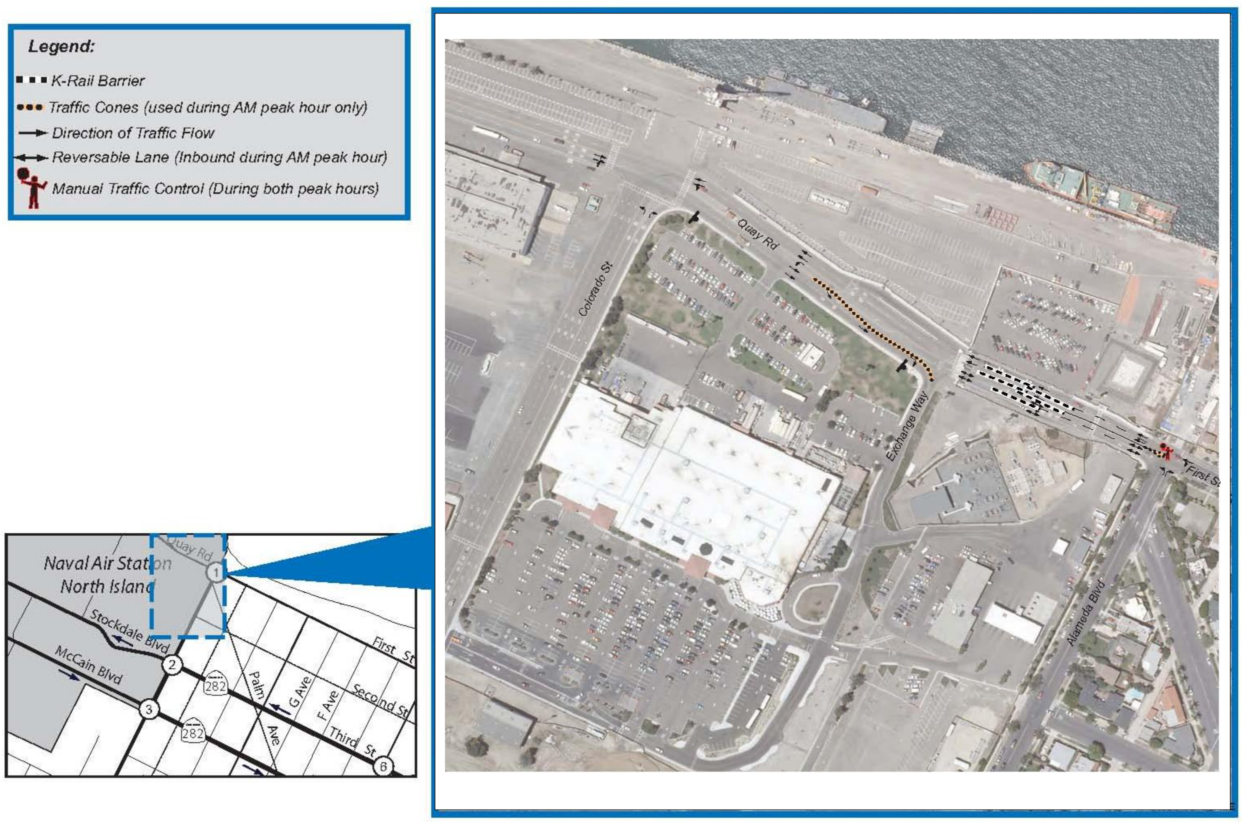


This option would provide marginal improvement in delay at the intersection, but the intersection would remain at LOS F during the P.M. peak hour. It may be less acceptable to the City of Coronado than Option 1 because it requires right-of-way acquisition.

First Street & Alameda Boulevard

This improvement would implement an inbound only configuration on First Street during the A.M. peak-hour during the infrequent times when 3 homeported carriers are in port. This one-way configuration would minimize queuing at the First Street Gate by providing 4 lanes of inbound traffic during the morning peak period. During one-way operation, eastbound traffic along Quay Road would have access to Exchange Way. During the P.M. peak-hour, the intersection would return to its normal operation with inbound and outbound traffic, but would still require manual traffic control. Figure 6.2-8 shows a conceptual sketch of the improvements at this intersection.

Figure 6.2-8 Potential Traffic Improvements (Internal/External) at First Street and Alameda Boulevard



On-base, this option would require installation of 2 signs along Quay Road to divert exiting traffic to the gate at McCain Boulevard during the A.M. peak period. In addition, traffic cones would be placed along Quay Road to merge and separate both eastbound and westbound traffic. Off-base, this option would require manual traffic control at the intersection, and traffic cones would be laid out in the middle of the intersection to channelize the vehicles turning left from Alameda Boulevard.

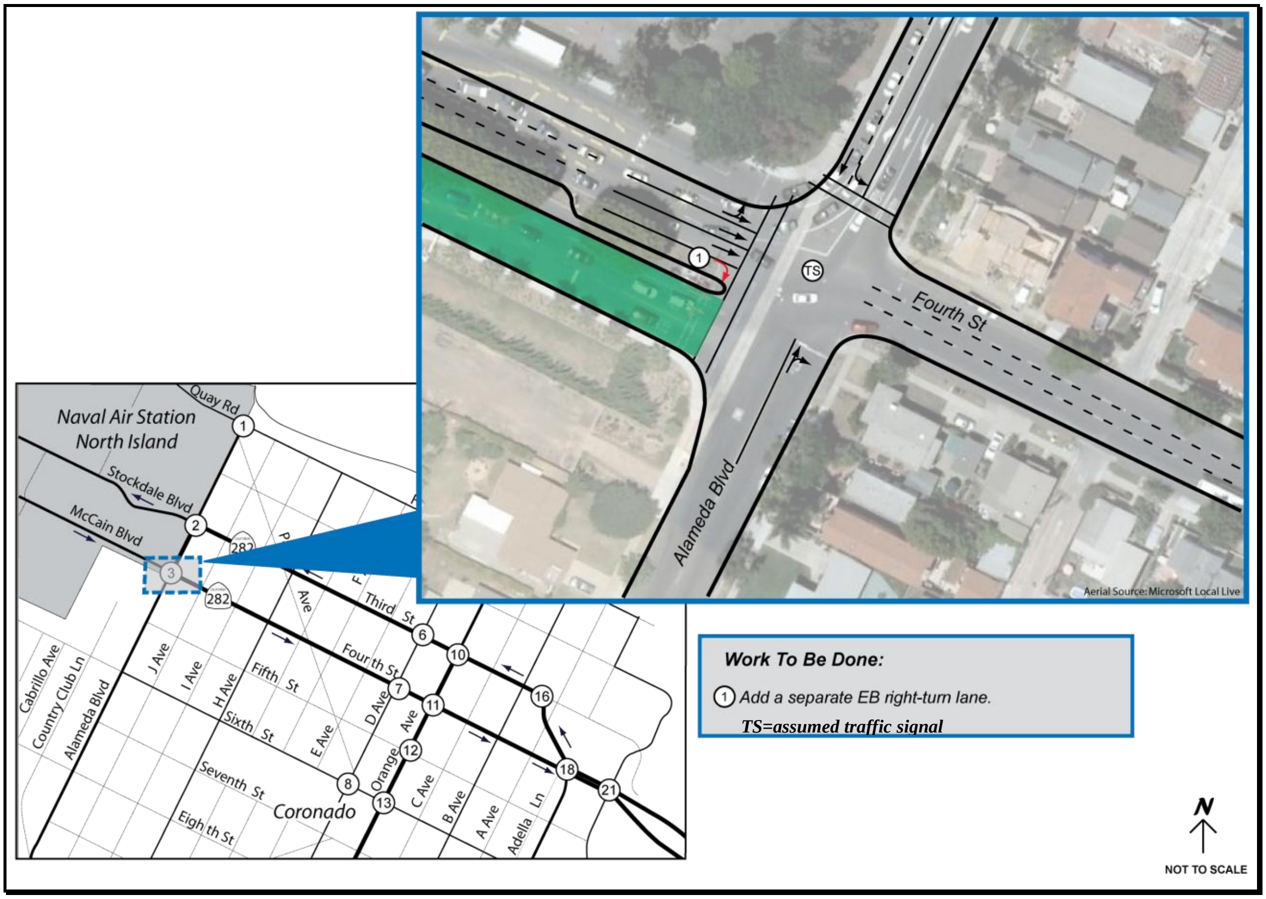
Benefits of this improvement include:

- Improves intersection conditions from LOS F to LOS A in the A.M. peak hour and from LOS F to LOS B in the P.M. peak-hour.
- Reduces the formation of queues onto City of Coronado streets.
- Most of the improvements are on NASNI and can be accomplished using Navy resources.

<u>Fourth Street & Alameda Boulevard</u>

The traffic analysis performed for this intersection assumes that the City will install a traffic signal in 2008. As a temporary measure before this signal installation, the Navy has used its personnel to manage exiting NASNI traffic by controlling or "stacking" vehicles movements that essentially mimics the effects on traffic done by a traffic signal. The potential additional improvement would consist of adding an exclusive eastbound right-turn lane along McCain Boulevard for vehicles turning right onto Alameda Boulevard. This improvement would help separate exiting traffic from NASNI and improve the overall traffic flow through this intersection, especially during the P.M. peak-hour. Additional minor signal modifications will be needed. Figure 6.2-9 shows a conceptual sketch of the improvements at this intersection.

Figure 6.2-9 Potential Traffic Improvements (Internal/External) at Fourth Street and Alameda Boulevard



Benefits of this improvement would include:

- Improves intersection conditions from LOS F to LOS D in the P.M. peak-hour.
- Most of the improvements are on NASNI and can be easily accomplished using Navy resources.
- City of Coronado work only involves: potential retiming of traffic signal and installation of sensors and sequencing equipment.

6.2.5 Additional Potential Measures

Given the established effectiveness of staggered work times when 3 CVNs are in port simultaneously (see Chapter 3.1), the Navy could further reduce peak hour traffic volumes and improve intersection LOS by expanding the staggered work hour approach to the more frequent times when 2 CVNs are in port simultaneously. Similarly, voluntary early start times on days when only 1 CVN is in port would also help to expand the peak periods to avoid direct overlap with civilian peak hour traffic times in the community.

The Navy has evaluated potential traffic calming measures to improve vehicle and pedestrian safety on Third and Fourth Streets. These potential improvements are under the jurisdiction of either the City of Coronado or CALTRANS and would require funding and implementation through the appropriate agencies. The goal of calming the traffic is to keep speeds slow, allow bicycles and pedestrians to cross the streets easier, and maintain the capacity of these streets so that traffic does not divert to other routes. The objective would be to maintain traffic flow in the travel lanes, while encouraging vehicles to travel at or near the posted 25 mph speed limit. These measures improve pedestrian safety, but do not impede traffic flow. The concept includes pedestrian activated crosswalks and bulb-outs (curb extensions, as shown in Figure 6.2-10) placed at intersections outside the travel lanes at up to 5 locations along the corridor indicated in Figure 6.2-11. Pedestrian activated crosswalks can either be activated manually by a pedestrian, or automatically when a pedestrian passes through an activation zone.

Figure 6.2-10 Example of Typical Bulb-outs

The potential locations are where there are existing crosswalks on Third and Fourth Streets at their intersections with I Avenue and F Avenue and at Fourth Street and Glorietta Boulevard. The bulb-outs narrow the street to the same extent a parked car would, but do not restrict the flow of vehicles in traffic lanes. Bulb-outs place pedestrians in a position where they are more visible to on-coming traffic, and they also shorten the distance that pedestrians must cross. The potential bulb-outs would preclude parking at the intersection. The illuminated crosswalk is used to make the crosswalk more visible when a pedestrian is allowed to cross. It is suggested that these installations be push button activated, which would allow the crossing time to be controlled so as to not interfere with traffic signal progression.

6.3 TRAFFIC RELATED AIR QUALITY

6.3.1 Description of Geographic Study Area

The study area for the traffic-related air quality cumulative impact analysis includes the area encompassed by the traffic study (Appendix C). The assessment of traffic related air quality is based on the worst case scenario of 3 CVNs non-staggered during the maximum build-out time frame 2030.

Figure 6.2-11
Potential Traffic Calming Improvements to Third and Fourth Streets

6.3.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

Baseline conditions as determined by actual traffic counts undertaken for the 2008 Traffic Study account for all current and past actions that may have affected the traffic volumes in the area, and hence traffic-related air quality in the area. This section does not capture any construction related air quality that is currently ongoing, as this is a short term impact. Construction-related air quality is discussed in Section 6.4. All future actions as they relate to traffic are captured in the 2030 traffic projections in the 2008 Traffic Study. These projections include projects and activities that may be associated with Navy actions, coastal development, and general population growth. Traffic-related air quality estimates are based on the worst case scenario of 3 CVNs non-staggered during the maximum build-out time frame 2030.

6.3.3 Cumulative Impact Analysis

Cumulative effects related to traffic-related air quality would not be significant. Results of the CO, PM, and MSAT traffic-impact analysis indicate that potential traffic-related emissions would not violate the NAAQS. In addition, since the traffic forecasts used during the impact analysis for CO, PM, and MSATs included the estimated vehicle trips associated with past, present, and reasonably foreseeable future projects, potential cumulative adverse impacts are reflected in the analysis results. Therefore, increased traffic volumes associated with homeported CVNs, in conjunction with traffic generated by other projects on or in the vicinity of NASNI, would not result in significant cumulative air quality impacts.

6.4 CONSTRUCTION RELATED AIR QUALITY

6.4.1 Description of Geographic Study Area

The study area for the construction-related air quality cumulative impact analysis includes NASNI and the rest of Coronado.

6.4.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

Due to the short period of time that pollutants produced from the construction can be found in the study area, for a project to be considered for cumulative impacts as it relates to construction-related air quality, it must also occur during the anticipated construction period (2009) of the Proposed Action. Applicable projects from those listed in Section 6.1 include:

- Special Project RM11-05 Quaywall Repair
- P-503 Child Development Centers
- Special Projects RM05-06 and RM201-07 Hangar Renovations
- NASNI Navy Lodge Expansion and Cottages
- Glorietta Bay Marina Rebuild
- Broadway Pier Cruise Ship Terminal (possible)
- Hotel del Coronado condominium project (possible)

In addition, other development projects in and around the bay could contribute to cumulative air quality impacts.

6.4.3 Cumulative Impact Analysis

The Berth LIMA improvements in conjunction with other contemporaneous construction activities in and around the study area would collectively generate short-term, temporary emissions from construction-associated vehicles and equipment. Such emissions would adversely impact air quality in the area.

However, cumulative construction-related emissions are expected to be below *de minimis* threshold levels, and would not be considered regionally significant (i.e., greater than 10 percent of the air basin's emission budgets). Due to the mobile nature of most construction emission sources, variations in the timing of cumulative projects, and the relatively short duration of project effects, potential impacts would be somewhat moderated over space and/or time. Therefore, the Proposed Action, in conjunction with other projects in the study area, would result in air quality impacts that are adverse but not significant.

6.5 TRAFFIC RELATED NOISE

6.5.1 Description of Geographic Study Area

The study area for analysis of cumulative traffic-related noise impacts includes the area encompassed by the traffic study (Appendix C). Traffic related noise is based on the worst case scenario of 3 CVNs non-staggered during the maximum build-out time frame 2030.

6.5.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

Baseline conditions are based off of current actual traffic counts. These counts account for all current and past actions that may have affected the traffic in the area and hence traffic related noise levels in the area. This section does not capture any construction noise that is currently ongoing as this is a short term impact. Construction related noise can be found in Section 6.6.

All future actions as they relate to traffic are captured in the 2030 traffic projections. Traffic related noise is based off of the worst case scenario of 3 CVNs non staggered during the greatest built out time frame 2030.

6.5.3 Cumulative Impact Analysis

Potential cumulative traffic-related noise impacts would only be experienced in areas that are in proximity to both the noise sources related to the Proposed Action and noise sources associated with other, concurrent projects in the same area (i.e., the NASNI neighborhood). Because the traffic forecasts used for the traffic noise impact analysis described in Section 3.3.2 include the trips from past, present, and reasonably foreseeable future projects, the potential cumulative adverse impacts are fully considered in the analysis results. The results show that cumulative impacts on traffic noise in the NASNI neighborhood would not be significant.

6.6 CONSTRUCTION RELATED NOISE

6.6.1 Description of Geographic Study Area

The geographic study area for analysis of the cumulative effects of construction-related noise is defined as the area within which noise levels generated at the project site would attenuate to current ambient levels in the vicinity of sensitive noise receptors. As described in Section 4.2, noise sensitive receptors occur approximately 2,000 feet from the Berth LIMA construction site and noise measurements indicate a range of ambient noise nearby of 66 to 78 dB, levels indicative of a busy daytime urban area or a typical commercial area. It is anticipated that the worst-case pile driving operations at the berth would result in a noise level at these locations of approximately 67 dBA (Appendix F). Therefore, for the purposes of this analysis, the study area for cumulative effects is defined by a radius of 2,000 feet surrounding Berth LIMA.

6.6.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

Planned projects expected to occur within the study area radius and in the same general time frame as the Proposed Action include Special Project RM11-05 Quaywall Repair and P-503 Child Development Center projects.

6.6.3 Cumulative Impact Analysis

The construction activities associated with the Proposed Action and the relevant cumulative projects would cause an intermittent, temporary, and noticeable increase in noise within the study area. However, the impact pile driver would be the dominant noise source and it would only be utilized for the Proposed Action. Other nearby projects would utilize equipment that generates considerably less noise, which would effectively be absorbed by the louder noise from the proposed project. Accordingly, the noise analysis in Section 4.2 would apply as well to the cumulative project conditions. The projects would collectively increase noise levels in the study area, which would be an adverse impact to the environment, but this impact would not be significant.

6.7 CONSTRUCTION RELATED IMPACTS ON BIOLOGICAL RESOURCES

6.7.1 Description of Geographic Study Area

The study area for the analysis of cumulative effects on biological resources encompasses San Diego Bay.

6.7.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

Relevant projects that would potentially occur during the same time frame and in the same geographical area as the proposed project include:

- Special Project RM11-05 Quaywall Repairs
- MILCON P-118, Pier 5002 Sub Fender Installation at NBPL
- MILCON P-135, Magnetic Silencing Facility at NBPL
- MILCON P-793V, Relocation of EMR and AMIMS Systems to NBPL and Naval Base Coronado.

6.7.3 Cumulative Impact Analysis

The construction activities associated with the proposed project would cause temporary impacts to biological resources in the geographic study area. These temporary impacts would be cumulative with the temporary effects of other construction and similar projects at NASNI and in the geographic study area undertaken within the same or similar timeframe. While the adjacent quaywall repair project is expected to be completed before commencement of the proposed infrastructure improvements at Berth LIMA, there may cumulative effects to biological resources from the frequency and long term duration of environmental effects such as noise, in-water turbidity and air emissions. These cumulative effects would not be significant.

Plankton communities in the area would temporarily be disturbed by the suspension of sediments resulting from in-water construction. Phytoplankton communities could be distressed due to a decrease in light levels from suspended sediments. As the resuspension of sediments would be a short term and limited geographic event and plankton populations are dynamic and constantly replenished, cumulative impacts would be temporary and minimal to the phytoplankton communities of San Diego Bay. Similarly, there would be cumulative but temporary and minimal impacts to marine algae.

Marine invertebrates would be displaced during in-water construction activities of the proposed project and similar projects. Mobile invertebrates would likely leave the areas, whereas sedentary and infaunal (living in the sediments) invertebrates could be harmed during in-water construction activities. Soft bottom sediments that support invertebrates in the project areas are found throughout the bay, so those organisms that are mobile could move to nearby areas of comparable habitat. As new recruitment would replenish invertebrate populations post-construction, negative impacts to invertebrates would be temporary and minimal.

Continuing construction activity would result in noise and localized turbidity that would likely cause fish to disperse away from the area. For those projects involving pile driving similar to the proposed project, noise from pile driving would not be at levels determined by NMFS to harm fish hearing (> 180 dB) more than a few feet away from where the pile is being driven (NMFS 2008). Thus, due to the mobility of these organisms and temporary, localized nature of disturbance, impacts to fish would be temporary and minimal.

Seabirds occur in large numbers in the project area and geographic study area. Noise from construction activities may disturb birds for the duration of these activities, but no destruction of bird habitat or nests would take place. Additionally, no impacts defined by the MBTA would occur. Birds are highly mobile, and as construction activities involve slowly moving vessels and vehicles, birds would avoid the area if disturbed.

Pile driving activities would result in underwater noise levels less than that determined to cause harm to pinnipeds by NMFS (190 dB [68 FR 64595]). Marine mammals are highly mobile organisms, and therefore, if disturbed by pile driving or vessel traffic would likely leave the area. To avoid or minimize potential effects to marine mammals, construction staff on Navy projects would be informed in writing of the possibility of such occurrences and the general appearance of the species. Upon detection of a marine mammal within 100 feet of the active construction site, staff would temporarily suspend activities until the animal moves to a distance of at least 100 feet from the construction area. Given the anticipated low levels of disturbance, limited abundance of these animals in the project region, and implementation of preventative measures, cumulative project activities would not adversely affect marine mammals.

Federally listed birds known to reside in or near the proposed project area include the California brown pelican and California least tern. Like other seabirds, these species are highly mobile, and if disturbed may leave the area. No nesting habitat would be impacted and relatively distant noise from construction activities is unlikely to disturb birds during nesting or foraging activities.

Green sea turtles are highly mobile organisms, and if present, would likely avoid the projects areas. There have been limited studies on sea turtle hearing capabilities, but the available data show that sea turtles can only hear moderately low frequency sounds, and have relatively low sensitivity within the range they are capable of hearing (Bartol et al. 1999; Ketten and Bartol 1995). Pile driving and other construction activities would probably deter sea turtles from closely approaching the work area, and as a result, the likelihood that a sea turtle would get close enough to experience any effects is remote. To avoid or minimize potential effects to green sea turtles, construction staff for Navy projects will be trained to detect and monitor movements of green sea turtles. Upon the sighting of a green sea turtle within 100 feet of the active construction site, staff would suspend activities until the animal moved to a distance of at least 100 feet from the construction area. Additionally, the Navy will continue to monitor tagged green sea turtles for presence and distribution throughout the bay for the remainder of the study period (January 2009) as part of the joint Navy-Port of San Diego-NMFS efforts to detect green sea turtles in the San Diego Bay using hydrophone gates and acoustic tags (NAVFAC SW 2008a). The Navy/Port study has documented 36 acoustic tag detections of 5 tagged green sea turtles south of the Naval Amphibious Base. To date, there have been no acoustic detections in the north bay or proposed project area; however, one visual sighting of a green sea turtle within the project area has been confirmed. Therefore, due to the rare occurrence of this species in the projects areas and preventative measures in place by the Navy, construction activities associated with the proposed project and similar projects and activities assessed in the cumulative impact analyses may affect, but are not likely to adversely affect the green sea turtle.

6.8 CONSTRUCTION-RELATED IMPACTS ON MARINE WATER QUALITY

6.8.1 Description of Geographic Study Area

The study area for the analysis of cumulative effects of construction on marine water quality is the NASNI turning basin. Due to the short duration that sediment produced from the construction remains suspended in the water column before dissipating and/or settling back to the bay floor, for other projects to be considered for cumulative impacts, they must also occur during the anticipated construction period and be in relatively close proximity to the proposed project.

6.8.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

The only relevant project for consideration of cumulative effects to this resource is Special Project RM11-05 Quaywall Repair.

6.8.3 Cumulative Impact Analysis

The construction activities associated with the proposed project would cause an intermittent, temporary, and marginal short-term increase in the sediments in the water column in the vicinity of the project site. The quaywall repair project is expected to be completed prior to the start of construction associated with the proposed project and the water quality impacts associated with this proposed project are temporary in nature and are expected to have dispersed prior to the impacts associated with the Proposed Action. As no additional past, present, and reasonably foreseeable future projects are programmed for locations in this immediate vicinity during the proposed construction period, the temporary cumulative, construction-related marine water quality impacts would be essentially the same as the impacts described in Section 4.4.2 and they would not be significant.

6.9 EROSION

6.9.1 Description of Geographic Study Area

Based upon comments received during public scoping, the geographic study area for the analysis of cumulative effects associated with erosion is limited to the shoreline along First Street, Coronado, California and areas immediately in front of this shoreline. As described in Section 5.2, hydrodynamic modeling of currents and the interrelated effects of dredging in San Diego Bay indicates that dredging of the turning basin offshore of NASNI is not a factor in the ongoing erosion along First Street. Accordingly, this analysis focuses solely on potential cumulative erosion effects of wakes caused by ship and boat movements in the study area.

6.9.2 Relevant Past, Present, and Reasonably Foreseeable Future Actions

According to the 2005 San Diego Harbor and Safety Plan, and as shown in Table 6.9-1, a large number of ocean-going vessels utilize San Diego Bay each year, with recreational boating and commercial excursion trips representing the largest proportion of vessel movements. Larger vessels tend to travel slowly through the bay, but all boats and ships can be expected to generate wakes as they move through the water. Wake size, speed, and potential for erosive effects are more a factor of the speed of the vessel through the water as opposed to the size of the vessel.

Table 6.9-1 Annual Ship, Boat, and Vessel Movements in San Diego Bay

Vessel Type	Dimensions			Vessel Movements	%Total
	Length (feet)	Beam (feet)	Draft (feet)		
Cargo[1] (largest vessel)	1,000	106	41	433	<1%
Cruise Ship (largest vessel)	1,000	106	34	130	<1%
Excursion (largest vessel)	151	42	8.5	60,572	21%
Commercial Sportfishing	123	32	13	10,094	4%
Military (largest vessel)	1,115	252 (flight deck)	39	10,000	3%
Tug Boats[2] (largest vessel)	102	38	18	>7,000	2%
Recreation[3]	unknown	unknown	unknown	<200,000	69%
Totals				**≈288,229**	**100%**

[1]Cargo includes bulk, container, general cargo, and roll on/roll off vessel types.
[2]Actual tug movements in the bay are greater than the figure shown; tug movements in the inner harbor alone exceed 7,000 for a typical year.
[3]Actual recreation boat movements are smaller than the figure shown; recreation boat movement data includes Mission Bay. If recreational boat movements were cut in half, and the number of tug boat movements remained unchanged, then military ship movements would constitute about 5 percent of total annual ship, boat, and vessel movements in San Diego Bay.
Source: HSC 2005

6.9.3 Cumulative Impact Analysis

As discussed in Section 5.2, there are several contributing factors that influence shoreline erosion, including natural processes (currents, wind, waves), lack of sediment replenishment, uncoordinated construction of erosion control structures, and use of unconsolidated artificial fill. Boat wakes may contribute to erosion given the similarity to wave action (Navy hasn't studied the general effects of wakes); but the analysis in Chapter 5 found that CVNs do not contribute to erosion along First Street. Military vessels, on average, represent approximately 3 to 5 percent of total annual ship, boat, and vessel movements in San Diego Bay (Table 6.9-1). Of the 10,000 average annual military vessel movements in San Diego Bay, only 52 are from aircraft carriers (NAVOPS 2008). Therefore, total movements from all aircraft carriers constitute only 0.02 percent of the average annual boat, ship, and vessel movements in San Diego Bay. In addition, aircraft carriers and other larger military vessels tend to travel slowly through the middle of the bay, thereby limiting the potential for generating sizeable wakes that would impact the shoreline. Lastly, CVNs do not travel south of the turning basin because of their deep drafts and the shallower depths in front of the First Street properties; therefore, CVNs do not represent a source of wake-generated erosion along First Street. While it is possible that wakes from certain types of boats (fast-moving recreational watercraft, for example) may contribute to erosion along First Street, military vessels would not be expected to contribute to any cumulative impacts on erosion in the study area.

CHAPTER 7
OTHER CONSIDERATIONS REQUIRED BY NEPA

Activities associated with the proposed minor infrastructure improvements at NASNI would comply with applicable federal, state, and local requirements with regard to the human environment. The federal acts, executive orders, policies, and plans that apply include the following: NEPA; Clean Air Act (CAA) and Federal General Conformity Rule; Clean Water Act (CWA); Rivers and Harbors Act; Coastal Zone Management Act (CZMA); Endangered Species Act (ESA); Fish and Wildlife Coordination Act; Magnuson-Stevens Fishery Conservation and Management Act; Marine Mammal Protection Act (MMPA); Migratory Bird Treaty Act (MBTA) and Executive Order (EO) 13186; National Historic Preservation Act (NHPA); Executive Order (EO) 12898, Minority Populations and Low-Income Populations; EO 13045, Protection of Children from Environmental Health Risks and Safety Risks; EO 12372, Coordination with State and Regional Agencies; the Naval Base Coronado Integrated Cultural Resources Management Plan (ICRMP); and the Naval Base Coronado Integrated Natural Resources Management Plan (INRMP). Relevant state, local, and regional plans, policies, and controls include: California Coastal Act (CCA); San Diego INRMP, and San Diego County Air Pollution Control District (SDCAPCD) Rules and Regulations. These requirements are primarily relevant to the proposed infrastructure construction. However, as relevant, they have also been considered in the supplemental analysis of environmental impacts from the actions under the 2000 ROD.

7.1 CONSISTENCY WITH OTHER FEDERAL, STATE AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

NASNI has a long history of being a land use that support Navy ships. The Navy fully anticipates using NASNI as a future naval base. The Navy adheres to all relevant laws and requirements applicable to its operations, maintenance and new construction activities. Table 7.1-1 provides a comprehensive list, organized by environmental resource, of federal and state environmental statutes, regulations and executive orders relevant to environmental analysis of the proposed minor construction and to a lesser extent to the supplemental analysis of environmental impacts. The table is followed by a more detailed description of the applicable laws and regulations.

Table 7.1-1 Major Environmental Statutes, Regulations, and Executive Orders Relevant to Proposed Minor Construction

Environmental Resources	Statute, Regulation, or Executive Order
Geology, Topography, and Soils	• National Pollutant Discharge Elimination System (NPDES) Construction Activity General Permit (40 CFR 122-124)
Wetlands and Floodplains	• Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (Public Law [PL] 92-500) • EPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref) • Floodplain Management-1977 (EO 11988) • Protection of Wetlands-1977 (EO 11990) • Emergency Wetlands Resources Act of 1986 (PL 99-645) • North American Wetlands Conservation Act of 1989 (PL 101-233)

Table 7.1-1 Major Environmental Statutes, Regulations, and Executive Orders Relevant to Proposed Minor Construction

Environmental Resources	Statute, Regulation, or Executive Order
Water Resources	• Federal Water Pollution Control Act (FWPCA) of 1972 (PL 92-500) and Amendments • CWA of 1977 (PL 95-217) • NPDES Construction Activity General Permit (40 CFR 122-124) • NPDES Industrial Permit and NPDES MS4 Permit • CWA 40 CFR 112 Spill Prevention Control and Countermeasure • EPA, Subchapter D-Water Programs (40 CFR 100-145) • Water Quality Act of 1987 (PL 100-4) • EPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 401-471) • Section 10 of the Rivers and Harbors Act of 1899 • CZMA of 1972 (16 U.S.C. Section [§] 1451) • CCA of 1976
Air Quality	• CAA of 1970 (PL 95-95), as amended in 1977 and 1990 (PL 91-604) • CAA General Conformity Rule (40 CFR Part 93 • EPA, Subchapter C-Air Programs (40 CFR 52-99) • 40 CFR Part 63 Subpart PPPPP, NESHAP • SDCAPCD Rules and Regulations
Noise	• Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609) • EPA, Subchapter G-Noise Abatement Programs (40 CFR 201-211) • City of Coronado Noise Abatement and Control Ordinance (Title 41, section 41.10.040)
Biological Resources	• Migratory Bird Treaty Act of 1918 • Fish and Wildlife Coordination Act of 1958 (PL 85-654) • Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX) • ESA of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478) • Fish and Wildlife Conservation Act of 1980 (PL 96-366) • Marine Mammal Protection Act and Amendments of 1994 (PL Public Law 103-238) • Lacey Act Amendments of 1981 (PL 97-79) • Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267) • Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186)
Cultural Resources	• NHPA (16 USC 470 et seq.) (PL 89-865) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575) • Protection and Enhancement of the Cultural Environment-1971 (EO 11593) • Archaeological Resources Protection Act of 1979 (PL 96-95) • Native American Graves Protection and Repatriation Act of 1990 (PL 101-601) • Protection of Historic Properties (36 CFR 800)
Hazardous and Toxic Substances and Waste	• RCRA of 1976 (PL 94-5800), as amended by PL 100-582; • EPA, subchapter I-Solid Wastes (40 CFR 240-280) • CERCLA of 1980 (42 USC 9601) (PL 96-510) • Toxic Substances Control Act (TSCA) (PL 94-496) • EPA, Subchapter R-Toxic Substances Control Act (40 CFR 702-799) • Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 162-180) • Emergency Planning and Community Right-to-Know Act (40 CFR 300-399) • Federal Compliance with Pollution Control Standards-1978 (EO 12088), Superfund Implementation (EO 12580)

Table 7.1-1 Major Environmental Statutes, Regulations, and Executive Orders Relevant to Proposed Minor Construction

Environmental Resources	Statute, Regulation, or Executive Order
	• Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition (EO 13101) • Greening the Government Through Efficient Energy Management (EO 13123) • Greening the Government Through Leadership in Environmental Management (EO 13148)
Utilities	• Safe Drinking Water Act of 1972 (PL 95-923) and Amendments of 1986 (PL 99-339) • EPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
Environmental Health and Safety	• Occupational Safety and Health Administration regulations (29 CFR) • Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898) • Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)

7.1.1 Federal Acts, Executive Orders, Policies, and Plans

7.1.1.1 National Environmental Policy Act (NEPA)

The Navy chose to prepare this EIS per CEQ's regulation at 40 CFR Part 1502.(c)(2), because NEPA's policies and purposes are best advanced in this way. This Final SEIS was prepared in accordance with the NEPA, 42 U.S.C. §§ 4321-4370d, as implemented by the CEQ Regulations, 40 CFR Parts 1500-1508, and the DON Regulations described in OPNAVINST 5090.1C of 30 October 2007.

7.1.1.2 Clean Air Act (CAA) and General Conformity Rule

The CAA of 1963 and subsequent amendments specify requirements for control of the nation's air quality. Federal and state ambient air standards have been established for each criteria pollutant. The 1990 amendments to the CAA require federal facility compliance with all requirements for air pollution control to a similar extent as non governmental entities must comply. The air quality analysis shows that the proposed minor construction would conform to the applicable SIP. DON has determined that total direct and indirect emissions of nonattainment criteria pollutants and precursors are below the de minimis thresholds set out in the conformity rule. This decision is recorded in a signed Record of Non Applicability (RONA), included as Appendix E.

7.1.1.3 Clean Water Act (CWA)

The federal CWA was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the U.S. The CWA includes programs addressing both point source and nonpoint source pollution, and empowers the states to set state-specific water quality standards and to issue permits containing effluent limitations for point source discharges.

Section 401 – Water Quality Certification. Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the U.S., including discharges of dredged or fill material, must obtain certification from the state in which the discharge would originate. After the completion of the NEPA process, the DON will submit an application for a Section 401 Water Quality Certification permit from the RWQCB, San Diego Region. The RWQCB requires the completed NEPA document as a part of the Section 401 application. This certification is required by USACE before a Section 404 permit can be issued (see below). Minor, localized resuspension of bottom sediments would occur during fender pile driving activities, but would not result in significant water quality impacts due to the localized and temporary nature of these activities.

Section 404 – Permits for Fill Placement in Waters and Wetlands. Section 404 of the CWA prohibits discharges of dredged or fill material into jurisdictional “waters of the U.S.” without a permit issued by the USACE. “Waters of the U.S.” are defined in USACE regulations (33 CFR §328.3) to include navigable waters, their tributaries, and adjacent wetlands. The USACE regulates, through the issuance of a Section 404 permit, the discharge of dredged or fill material in waters of the U.S. The DON submitted the USACE permit application and is awaiting receipt of the Section 401 Certification. The USACE requires the Section 401 Certification in order to issue the permit.

7.1.1.4 Rivers and Harbors Act

Permits are required from the USACE under Section 10 of the Rivers and Harbors Act for all structures or work in or affecting navigable waters of the U.S. (§322.3[a]) (see 33 CFR 322.2[a] for USACE authority under Section 10, and 33 CFR 329.4 for the definition of navigable waters). Because the project is in an area adjacent to a navigation channel under the jurisdiction of the USCG, Section 10 of the Rivers and Harbors Act would apply to the project. A Rivers and Harbors Act permit would be required for this project because it involves work in navigable waters. The USACE has the authority to combine all authorizations into 1 permit action, and USACE would likely issue a comprehensive CWA Section 404/ Rivers and Harbors Act Section 10 permit. DON will obtain necessary permits prior to start of any construction for the Proposed Action.

The new construction involved with the proposed project would involve the driving of support piles in to the bay bottom, but no significant changes would occur to the environment, such as water circulation.

7.1.1.5 Coastal Zone Management Act (CZMA)

Under the CZMA of 1972 (16 U.S.C. Section [§] 1451), federal actions affecting the coastal zone are required to be consistent, to the maximum extent practicable, with the enforceable policies of an approved Coastal Management Plan. CZMA defines the coastal zone (16 U.S.C. § 1453) as extending, "to the outer limit of State title and ownership under the Submerged Lands Act" (i.e., 3 nautical miles from the shoreline). The coastal zone extends inland only to the extent necessary to control the shoreline. Excluded from the coastal zone are lands the use of which is by law subject solely to the discretion of, or which is held in trust by, the federal government (16 U.S.C. § 1453). Accordingly, federal military lands such as Naval Base Coronado are not within the coastal zone. But activities there often have effects that reach out into the coastal zone.

The State of California has an approved CMP. The CCA of 1976 (California Public Resources Code, Division 20) implements California's CZMA program. The CCA includes policies to protect and expand public access to shorelines, and to protect, enhance, and restore environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain woods and grasslands, streams, lakes, and habitat for rare and endangered plants and animals.

The California Coastal Commission (CCC) administers the State's CMP. Under the CZMA, the CCC must provide an opportunity for public comment and involvement in the federal coastal consistency determination process.

Impacts addressed in this SEIS have been considered with respect to the existing Consistency Determination of the CCC, which was issued following the 1999 FEIS. In conjunction with this SEIS, the Navy has completed the federal consistency review process through submission of its Negative Determination to the CCC, for which the CCC has issued its written concurrence (Appendix M).

7.1.1.6 Endangered Species Act (ESA)

The ESA of 1973, as amended, requires that any action authorized by a federal agency shall not jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. Section 7 of the Act requires that the responsible federal agency consult with USFWS or NMFS, depending on the species, concerning endangered and threatened species under their jurisdiction that may be affected by the proposed construction. The Navy has been in informal consultation with the NOAA since the beginning of the green sea turtle study. Interim findings indicate that green sea turtles do move randomly though the southern part of San Diego Bay and may loaf and forage as far north as the project site. One visual sighting of a green sea turtle within the project area has been confirmed. Therefore, the Navy along with the USACE have revised their ESA findings from "no effect" to "may affect" for all projects within San Diego Bay, including P-704 for Berth LIMA at NASNI based on the potential rare occurrence of this species in the project area. To preclude adverse affect, the Navy will employ avoidance and minimization measures including, performance of a visual sweep of the project area, or of a 100-foot radius (whichever is greater) prior to commencing pile driving activities, and after a break in pile driving for more than 30 minutes. If any green sea turtles are seen within this visual range, the Navy will not commence pile driving activities until 15 minutes has passed since the last such sighting, or the animal has moved out of the established range. If a green sea turtle moves within this established range while pile driving activities are occurring, such activities can continue without interruption. Prior to the start of pile driving each day, after each break of more than 30 minutes, and if any increase in the intensity is required, the Navy will use a ramp-up procedure. This procedure involves a slow increase in the pile driving to allow any undetected animals in the area to voluntarily depart. The Navy, in consultation with NOAA has determined through informal consultation that this will prevent adverse effects on this species. The Navy has received written concurrence from NOAA, included in Appendix M, on the finding of "may affect, not likely to adversely affect" green sea turtles.

There are 2 other listed species in the project area: California least tern and California brown pelican. The Navy has a MOU with the USFWS that covers consultations for the California least tern. Based upon the MOU, the Navy has determined that California least tern is not likely to be adversely affected by the proposed project. In addition, the Navy has received written concurrence, included in Appendix M, from the USFWS on the finding of "may affect, not likely to adversely affect" the California brown pelican and California least tern.

7.1.1.7 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat (EFH). EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, or growth to maturity." Habitat Areas of Particular Concern (HAPCs) are a subset of EFH; Fishery Management Councils are encouraged to designate HAPCs under the Magnuson Act. The construction activities associated with the proposed project will adversely affect EFH, but these effects are expected to be short term/temporary, localized, and adequately offset pursuant to the Magnuson-Stevens Act as determined in consultation with the NMFS. Therefore, they would not be significant under NEPA. Written concurrence from NMFS on the Navy's EFH findings is included in Appendix M.

7.1.1.8 Marine Mammal Protection Act (MMPA)

The MMPA establishes a national policy designated to protect and conserve marine mammals and their habitats. This policy is established so as not to diminish such species or population stocks beyond the point at which they cease to be a significant functioning element in the ecosystem, nor to diminish such species below their optimum sustainable population. The MMPA also prohibits “take”, broadly defined, of marine mammals. The Navy concluded that with the implementation of mitigation measures, there would be no adverse impacts to or other take of marine mammals, including endangered or threatened marine mammals, as a result of the construction work. NMFS has reviewed these findings and provided correspondence, included in Appendix M, requesting that the Navy use the contacts provided in unlikely event a take occurs during construction.

7.1.1.9 Migratory Bird Treaty Act (MBTA)

All birds, with the exception of non-native species, that occur in San Diego Bay are protected under the MBTA and EO 13186, which directs federal agencies to avoid or minimize negative effects on migratory birds, to protect their habitats, and to consider effects on migratory birds in NEPA documents. DON concluded that there would be no adverse effects on migratory birds as a result of the proposed construction.

7.1.1.10 National Historic Preservation Act (NHPA)

The NHPA was passed in 1966 to provide for the protection, enhancement, and preservation of those properties that possess significant architectural, archaeological, historical, or cultural characteristics. Section 106 of the NHPA requires the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally-financed undertaking, prior to the expenditure of any federal funds on the undertaking, to take into account the effect of the undertaking on any historic property.

For the Proposed Action, compliance with Section 106 of the NHPA and 36 CFR 800 has been previously accomplished under the San Diego Metropolitan Area Programmatic Agreement (Metro Area PA), executed in February 2003 between Commander, Navy Region Southwest (CNRSW), the Advisory Council on Historic Preservation, and the California State Historic Preservation Office (SHPO). The Metro Area PA provides for CNRSW determinations of a project’s area of potential effect (APE), identification of potentially affected historic properties, and assessment of “no historic properties affected” and “no adverse effect” without further consultations with SHPO that normally are required under 36 CFR 800. There is an inventory of historic structures and sites, and a maintenance plan for historic properties at NASNI. A comprehensive Naval Base Coronado ICRMP is currently in preparation, with completion scheduled for 2009. The CNRSW determination was that no historic properties would be affected by the implementation of the proposed construction.

7.1.1.11 EO 12898

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs all federal departments and agencies to incorporate environmental justice considerations in achieving their mission. Each federal department or agency must identify and address disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations.

The Proposed Action will not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

7.1.1.12 EO 13045

In 1997, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, was issued. This order requires each federal agency to "…make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall…ensure that its policies, programs, activities and standards address disproportionate risks to children…."

The Proposed Action will not result in environmental health risks and safety risks that may disproportionately affect children.

7.1.1.13 EO 12372

EO 12372, Intergovernmental Review of Federal Programs, was issued in 1982 in order to foster an intergovernmental partnership and a strengthened federalism by relying on state and local processes for the state and local government coordination and review of proposed federal financial assistance and direct federal development.

DON pursues close planning relations with local and regional agencies and planning commissions of adjacent cities, counties, and states. In preparing this SEIS, relevant data from state, regional, and local agencies were reviewed in order to determine regional and local conditions associated with the Proposed Action. These agencies included the CARB, the SDCAPCD, and the California RWQCB. The City of Coronado, as the most directly affected local government, CALTRANS and CCC contributed to the scoping process and coordination will continue throughout the SEIS preparation process. The City of Coronado and CALTRANS have a particular interest with respect to the supplemental analysis of traffic impacts, and the consideration of potential traffic improvement measures. The Navy has also considered the CALTRANS SR 75/282 TCP EIS in the course of preparing this SEIS.

7.1.1.14 Naval Base Coronado Integrated Natural Resources Management Plan (INRMP)

The purpose of the INRMP is to help DON manage their resources in a manner that promotes sustainable management practices and to ensure continued support of military activities. The Naval Base Coronado INRMP was developed in accordance with the Sikes Act Improvement Act of 1997 and in cooperation with the USFWS, California Department of Fish and Game, and NMFS. The Proposed Action would be consistent with INRMP goals of protecting the natural ecosystems of Naval Base Coronado and would have no significant impact on natural resources.

7.1.2 State, Local, and Regional Plans, Policies, and Controls

7.1.2.1 California Coastal Act (CCA)

DON has determined that the Proposed Action will not affect the coastal zone. An appropriate Negative Determination was submitted to the CCC for their review and opportunity to comment. The CCC has issued its concurrence.

7.1.2.2 California Endangered Species Act (ESA)

No state-listed species occur in the project area.

7.1.2.3 San Diego County Air Pollution Control District (SDAPCD) Rules and Regulations

Air emissions would comply with all applicable SDAPCD Rules and Regulations and permit requirements.

7.1.2.4 City of Coronado General Plan

The proposed action at Berth LIMA (MILCON P-704) would occur entirely within the boundaries of NASNI, and it is therefore outside the area covered by the City's general plan and its effects do not extend into the area. Therefore, it is consistent with the plan.

7.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA (42 USC § 4332 Section 102(2)(C)(v) as implemented by CEQ regulation 40 CFR 1502.16) requires an analysis of significant, irreversible effects resulting from implementation of a Proposed Action. Resources that are irreversibly or irretrievably committed to a project are those that are typically used on a long-term or permanent basis; however, those used on a short-term basis that cannot be recovered (e.g., non-renewable resources such as metal, wood, fuel, paper, and other natural or cultural resources) also are irretrievable. Human labor is also considered an irretrievable resource. All such resources are irretrievable in that they are used for a project and thus become unavailable for other purposes. An impact that falls under the category of the irreversible or irretrievable commitment of resources is the destruction of natural resources that could limit the range of potential uses of that resource.

Implementation of the Proposed Action would result in an irreversible commitment of building materials; vehicles, and equipment used during removal and installation activities; and human labor and other resources. Energy (electricity and natural gas) and water consumption, as well as demand for services, would not increase significantly as a result of the implementation of the proposed construction activities. The commitment of these resources is undertaken in a regular and authorized manner, and does not present significant impacts within this SEIS.

7.3 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

NEPA requires consideration of the relationship between short-term use of the environment and the impacts that such use could have on the maintenance and enhancement of long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. Such impacts include the possibility that choosing 1 alternative could reduce future flexibility to pursue other alternatives, or that choosing a certain use could eliminate the possibility of other uses at the site.

Implementation of the proposed project would not result in any environmental impacts that would narrow the range of beneficial uses of the project site or vicinity and there would be no change in land use at the site. The site represents a man-made wharf area that was originally under water; it has a long history of use as a berth for military ships and its long-term productivity derives from such use. The proposed project would not represent a new short-term use and would not impact the productivity of the natural environment. In addition, biological productivity would not be affected as implementation of the proposed project would not result in significant direct, indirect, or cumulative impacts to any biological resources.

CHAPTER 8 PUBLIC INVOLVEMENT AND INTERAGENCY COORDINATION, AND DISTRIBUTION LIST

8.1 DRAFT SEIS

A NOI for the preparation of this SEIS and announcement inviting public comments during the scoping process was published in the Federal Register on 18 October 2007. An extension of the public scoping period from 19 November 2007 to 03 December 2007 was published on 13 November 2007. A summary of issues identified at the scoping sessions are listed in Chapter 1, Table 1.8-1.

The following organizations, individuals, and agencies received a copy of the Draft SEIS.

FEDERAL GOVERNMENT

U.S. Senate, California Senator Barbara Boxer

U.S. Senate, California Senator Dianne Feinstein

U.S. Senator, Arizona Senator Jon Kyl

U.S. House of Representatives, District 49, Congressman Darrell E. Issa

U.S. House of Representatives, District 50, Congressman Brian P. Bilbray

U.S. House of Representatives, District 51, Congressman Bob Filner

U.S. House of Representatives, District 52, Congressman Duncan Hunter

U.S. House of Representatives, District 53, Congresswoman Susan Davis

STATE GOVERNMENT

State of California, Governor Arnold Schwarzenegger

California State Assembly, District 76, Assembly Member Lori Saldaña

California State Assembly, District 77, Assembly Member Joel Anderson

California State Assembly, District 78, Assembly Member Shirley Horton

California State Assembly, District 79, Assembly Member Mary Salas

California State Senate, District 36, Senator Dennis Hollingsworth

California State Senate, District 38, Senator Mark Wyland

California State Senate, District 39, Senator Christine Kehoe

California State Senate, District 40, Senator Denise Ducheny

LOCAL GOVERNMENT

City of Carlsbad, Mayor Claude A. "Bud" Lewis

City of Chula Vista, Mayor Cheryl Cox

City of Chula Vista, Mr. David Garcia

City of Coronado, Mayor Tom Smisek

City of Coronado, Mr. Mark Ochenduszko

City of Del Mar, Mayor Carl Hilliard

City of Encinitas, Mayor James Bond

City of Imperial Beach, Mayor Jim Janney

City of Imperial Beach, Mr. Gary Brown

City of National City, Mayor Ron Morris

City of National City, Mr. Chris Zapata

City of San Diego, Mayor Jerry Sanders

City of San Diego, Ms. Elizabeth Maland

City of Solana Beach, Mayor Lesa Heebner

Coronado City Council, Mr. Philip Monroe

Coronado City Council, Mr. Casey Tanaka

Coronado City Council, Ms. Carrie Downey

LIBRARIES

Chula Vista Library

Coronado Public Library

National City Public Library

San Diego Public Library

San Diego Public Library, Point Loma Branch

San Diego County Library, Imperial Beach Branch

FEDERAL AGENCIES

National Marine Fisheries Service, Long Beach, California

National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland

National Marine Fisheries Service, Southwest Region, Long Beach, California

U.S. Army Corps of Engineers, Los Angeles District, Los Angeles, California

U.S. Coast Guard, Eleventh District, Alameda, California

U.S. Coast Guard, San Diego Port Operations, San Diego, California

U.S. Customs and Border Protection, San Diego Field Operations Office, San Diego, California

U.S. Environmental Protection Agency Region 9, San Diego Border Liaison Office, San Diego, California

U.S. Environmental Protection Agency Region 9, San Francisco, California

U.S. Environmental Protection Agency Region 9, Southern California Field Office, Los Angeles, California

U.S. Fish and Wildlife Service, California and Nevada Operations, Sacramento, California

U.S. Fish and Wildlife Service, Carlsbad, California
U.S. Fish and Wildlife Service, Pacific Region, Portland, Oregon

STATE AGENCIES

California Air Resources Board, Sacramento, California
California Coastal Commission, San Francisco, California
California Regional Water Quality Control Board, San Diego Region, San Diego, California
California State Clearinghouse, Sacramento, California
Development and Environmental Planning, San Diego, California

REGIONAL AND LOCAL AGENCIES

Pacific Fishery Management Council, Portland, Oregon
Port of San Diego, San Diego, California
Port of San Diego, Board of Commissioners, San Diego, California
San Diego Association of Governments, San Diego, California

LOCAL ORGANIZATIONS AND GROUPS

Coronado Chamber of Commerce, Coronado, California
Coronado Navy League, Coronado, California
Coronado Shores Condo Association, Coronado, California
Coronado Unified School District, Coronado, California
Coronado Yacht Club, Coronado, California
Defenders of Wildlife, Sacramento, California
Economic Development Corporation, San Diego, California
Endangered Species Recovery Council, La Jolla, California
Environment Now, Santa Monica, California
Environmental Defense Fund, New York, NY
Environmental Health Coalition, National City, California
Environmental Policy and Planning Branch,
Fiddler's Cove Marina, San Diego, California
Glorietta Bay Marina, Coronado, California
Greater San Diego Business Association, San Diego, California
Greenaction for Health and Environmental Justice, San Francisco, California
Greenpeace, Washington D.C.
Hotel Del Coronado, Coronado, California

Imperial Beach Chamber of Commerce & Visitors Bureau, Imperial Beach, California
Lions Club, Downtown San Diego, San Diego, California
Loews Coronado Marina, Coronado, California
Lowes Coronado Bay Resort, Coronado, California
National City Chamber of Commerce, Coronado, California
Navy League, Coronado Council, La Mesa, California
Navy Yacht Club San Diego, Coronado, California
North County Chambers Association, Carlsbad, California
Pacific Coast Federation of Fishermen's Associations, Southwest Regional Office, San Francisco, California
Pacific States Marine Fisheries Commission, Portland, Oregon
Peace Resource Center, San Diego, California
Peninsula Chamber of Commerce, San Diego, California
Planning and Conservation League, Sacramento, California
Rural Alliance for Military Accountability (RAMA), Reno, Nevada
San Diego Association of Yacht Clubs, Chula Vista, California
San Diego Audubon Society, San Diego, California
San Diego Baykeeper, San Diego, California
San Diego Business Journal, San Diego, California
San Diego Chamber of Commerce, San Diego, California
San Diego Coast Keeper, San Diego, California
San Diego Community Newsgroup, San Diego, California
San Diego Harbor Police, San Diego, California
San Diego Oceans Foundation, San Diego, California
San Diego Regional Chamber of Commerce, San Diego, California
San Diego Yacht Club Anglers, San Diego, California
Save Our Bay, Imperial Beach, California
Sierra Club, San Francisco, California
Sierra Club Legal Defense Fund, San Francisco, California
Sierra Club of San Diego, San Diego, California
Southern California Yachting Association, Tustin, California
Sportfishing Association of California, San Diego, California
Surfrider Foundation, San Diego Chapter, Solana Beach, California
The Nature Conservancy, San Diego Chapter, San Diego, California

INDIVIDUALS

Mr. Robert Baldwin
Mr. Teddie Baldwin
Mr. John Barnes
Ms. Linda C. Beresford, Opper & Varco Environmental Law Firm
Mrs. Annette and Mr. Leo Beus
Mr. Steven Beus
Mr. Larry Brown and Mrs. Daphne Brown
Mr. Earle Callahan
Mr. Ryan Clandening
Ms. Jan Clements
Mr. Wayne Crawford
Ms. Laura Rose Crenshaw
Ms. Gloria Curran
Ms. Ruth Darby
Ms. Sherry Delgado
Mr. Bart Dewey
Mr. William Dickerson
Ms. Rebecca Dixon
Ms. Linda Dobson
Mr. Donald Dolan
Mr. Ryan Dolan
Ms. Marilyn Gibson
Mr. Jeffrey Goggin
Mr. Thomas Griffin
Mr. and Mrs. Larry Gunning
Mr. and Mrs. Maurice & Barbara Harwick
Ms. Elizabeth A. Hornich
Mr. John Hunt
Ms. Natalie Hunt
Mr. Troy Hymas
Ms. Jan Iwashita
Ms. Kristine Ketring
Mr. Mark Ketring
Mr. Gary Klockenga
Mr. Paul Kriet and Mrs. Shirley Kriet
R.B Lindsay
Mr. Donald May
Mr. William May
Ms. Margaret McCloskey
Ms. Erin McGuinness
Ms. Dorothy Mc Swain
Ms. Heidi Meyers
Ms. Sandy Morrison
Mr. Elmo Nelson and Mrs. Dana Nelson
Mr. Michael Nelson
Mr. Anthony Orfila
Mr. John Parker
Ms. Olive Peterson
Ms. Jillian Proctor
Ms. Teresa Rahn
Ms. Kim Rains
Mr. Samuel Randall
Ms. Linda Reed
Mr. Keith Ricker
Mr. and Mrs. Brian & Doris Ricks
Terry Rodgers
Mr. Jimmie Rough
Mr. George Sanger
Mr. and Mrs. Gerald Schwartz
Capt. and Mrs. Richard M. Sewall
Mr. Chad Sheirbon
Ms. Gwen Siedler
Mr. Mark Skidmore
Ms. Ann Sonne
Mr. Patrick Sovereign
Mr. Craig Tanner
Ms. Diana Tanner
Ms. Donna Walla

Mr. Richard Williams
Ms. Sharon Williams
Ms. Wendy Wise
Ms. Britton Worthen
Ms. Lindsey Worthen
Mr. Daniel Zeman
Ms. Darlene Zeman
Ms. Stephanie Zeman

8.2 FINAL SEIS

The NOA and NOPH for the Draft SEIS appeared in the Federal Register on August 8, 2008 beginning the 45-day public review period that ended on September 22, 2008. A public hearing for the Draft SEIS was held during this public review period, on September 3, 2008, and comments received during the comment period and from the public hearing have been addressed in this Final SEIS.

The following individuals requested a copy of the Final SEIS:

Mr. James Benson
Mr. Robyn Bin
Mr. Earle Callahan
Ms. Kathleen Clark
Mr. Harry DeNardi
Ms. Megan Dougherty
Mr. and Mrs. Charlie and Gail Escola
Mr. Paul Friedl
Mr. Bob Geilehfeldt
Mr. Romeo Hacinas
Mr. and Mrs. Maurice and Barbara Harwick
Mr. Don Hinsvark
Ms. Pamela Hollinger
Ms. Jamie Jamison
Mr. Abe Kazuywki
Mr. and Mrs. Paul and Shirley Kriet
Mr. Michael Manning
Ms. Nancy Manning
Mr. Lee McDonald
Ms. Linda Nichols
Mr. Richard Opper
Ms. Aileen Oya
Mr. George Sanger
Mr. Richard Scharff
Mrs. Barbara Sewall
Ms. Mary Stemad
Mr. Seth Torma
Mr. Art Wynn

CHAPTER 9
GLOSSARY OF TERMS

Altered flow field: The deviation in water flow characteristics including volume, speed, and direction, in response to dredging.

A.M. or P.M. peak hours: Peak hours are those hours of the day during which the bulk of commute trips occur and traffic impacts are likely to be the greatest. There may be different peak hours for base-generated traffic as compared to general community traffic. For NASNI traffic, the A.M. peak hour generally occurs between 6:15 A.M. and 7:15 A.M., and the P.M. peak hour generally occurs between 2:30 P.M. and 3:30 P.M. For community-based traffic on the Coronado road network, the A.M. peak hour generally occurs between 7:30 A.M. and 8:30 A.M. and the P.M. peak hour generally occurs between 4:30 P.M. and 5:30 P.M.

Amplitude: Strength or magnitude; the range in value from peak to trough in a wavelength, compared with a mean value or trend line.

Ambient: An encompassing atmosphere.

Annual Average Daily Traffic (AADT): The average number of cars that use a roadway segment within a 24-hour period over the span of a year. AADT gives a broader view of the number of cars that use a roadway segment as it eliminates seasonal fluctuations in traffic volumes.

Average Daily Traffic (ADT): The number of vehicles that use a roadway segment within a 24-hour period.

Bathymetry: Information derived from measuring the depths of water in oceans, seas, and lakes.

Benthic organisms: Organisms that live within or on top of the bottom sediment within a body of water.

Benthic: Pertaining to the bottom of the water body.

Bioaccumulation: The accumulation of chemical compounds in the tissues of an organism. For example, certain chemicals in food eaten by a fish tend to accumulate in its liver or other tissues.

Biota: The flora and fauna of a region.

Bioassay: A biological laboratory test used to evaluate the toxicity of a material (commonly sediments or wastewater) by measuring behavioral, physiological, or lethal responses of organisms.

Bulb-out: Curb extensions that narrow traffic lanes to the same extent a parked car would, but do not restrict the flow of vehicles in traffic lanes. Bulb-outs place pedestrians in a position where they are more visible to oncoming traffic and shorten the distance that pedestrians must cross.

Capacity: The maximum number of persons or vehicles that can be expected to traverse a point or uniform section of road within a specified time frame under prevailing roadway, traffic and control conditions. Theoretically, this is the point in which the flow rate (vehicles/hour) on the facility is the highest. The highest volume attainable under LOS E has been designated as the capacity of the arterial or collector.

Cohesion: The state of cohering or sticking together.

Circulation: The movement of a substance or item through circuit, system or medium.

Coastal zone: The region along the shore, adjacent to the ocean. A coastal zone is usually defined as the region within 3 nautical miles of shoreline.

Contaminant, hazardous: A chemical or biological substance in a form or in a quantity that can harm aquatic organisms, consumers of aquatic organism, or users of the aquatic environment.

Dredge material: Sediments excavated from the bottom of a waterway or water body.

Dredging: Any physical digging into the bottom of a water body. Dredging can be done with mechanical or hydraulic machines.

Dynamic equilibrium: When 2 opposing processes proceed at the same rate.

Effluent: Water flowing out of a contained disposal facility. To distinguish from runoff due to rainfall, effluent usually refers to water discharged during the disposal operation.

Emission: The release of a liquid, gas or particle in to a medium (liquid, gas, plasma or vacuum).

Erosion: Displacement of solids (sediment, soil, rock and other particles) usually by the agents of currents such as, wind, water, or ice by downward or down-slope movement in response to gravity

Fendering system: The series of concrete or wood piles or panels in front of a quaywall, on which fenders are attached.

Fenders: A bumper, usually containing air or foam, which is used to keep ships and boats from striking the dock or other nearby vessels, due to wave or tidal action.

Geomorphology: The evolution and configuration of landforms.

Graben: A narrow area of the earth's crust that has subsided relative to adjacent fault blocks.

Groundwater: Water that is present in the pore spaces and other spaces in the rocks below the earth's surface.

Highway Capacity Manual: A publication of the Transportation Research Board. It contains concepts, guidelines, and computational procedures for computing the capacity and quality of service of various highway facilities, including freeways, signalized and unsignalized intersections, rural highways, and the effects of transit, pedestrians, and bicycles on the performance of these systems.

Homeport: The port in which a vessel is permanently based.

Hydrodynamic: The force of, or related to, liquid in motion.

Intertidal area: The area between extreme high water and extreme low water. The alternative wetting and drying of this area creates special environmental conditions. Intertidal areas tend to have organisms that are terrestrial, marine, and unique to the intertidal zone.

Level of Service (LOS): Corresponds to "excellent" through "failure" conditions in terms of traffic congestion, both for road segments and for intersections. It is used to provide an indication of the amount of delay a driver would experience along a road segment or the amount of wait time a driver would experience at an intersection. LOS is rated on a scale of "A" through "F", with "A" representing excellent, free flow conditions, and "F" representing failures of road segments or intersections.

Liquefaction: The changing of a solid into a liquid.

Littoral cell: An area under the continuous influence of specific longshore currents.

Macrobenthic: Pertaining to large benthos (benthic organisms: see "benthic" in this glossary) such as crabs or starfish.

Meteorological: Pertaining to the atmosphere and its phenomena, particularly weather conditions.

Mooring bollard: A short wooden, iron, or concrete post on a dock used to tie and secure ships when in port.

Non-attainment: Failure to meet one or more local, state, or federal ambient air standards.

Particulate: Pertaining to a very small piece or part of material.

Pelagic: Pertaining to the open ocean, as opposed to shore-adjacent or inland waters.

Phytoplankton: The aggregate of plants and plantlike organisms in plankton.

Pile driver: A machine for driving down piles with a drop hammer or a steam or air hammer.

Polychlorinated biphenyls (PCB): A group of man-made organic chemicals, including about 70 different, but closely related compounds make up of carbon, hydrogen, and chlorine. If released to the environment, they persist for long periods of time and can concentrate in food chains.

Polycyclic: A class of complex organic compounds, some of which are aromatic hydrocarbons (PAHs) that are persistent and/or cancer-causing. These compounds are formed from the combustion of organic material and are ubiquitous in the environment. PAHs are commonly formed by forest fires and by the combustion of organic fuels. PAHs often reach the environment through air transport of particulates, highway runoff, and oil discharge.

Quay: A structure built within a waterway for use as a landing place.

Riprap: Layer of large, durable fragments of broken rock, specially selected and graded. Its purpose is to prevent erosion by waves or currents and thereby preserve the shape of a surface, slope, or underlying structure.

Sediment: Particles of organic or inorganic origin that accumulate in loose form.

Sedimentation: The act or process of depositing sediment.

Sediment budget: The tally of inputs and outputs for a specified open system, over a specified period of time; a balanced sediment budget is essentially an equation of mass conservation in which the sediment fluxes related to the sources, sinks, and storages are balanced.

Sediment exchange: The exchange of sediments between the above-water and below-water portion of the beach; primarily occurs across-shore, driven by wave motion in the swash zone.

Substrate: Substance that lies beneath and supports another.

Tidal prism: The volume of water passing through a defined area within a coastal bay between low and high tides.

Tombolo: A deposition landform, similar to a spit, that connects an island to the shore.

Topography: The detailed physical description of the surface of a region, including the relative elevations features. The graphical representation of the physical configuration of a region on a map.

Toxic: Relating to or caused by a toxin that is a poisonous substance to a living organism.

Traffic calming: Roadway design elements used to keep speeds slow (at or near the speed limit), allow bicycles and pedestrians to cross the streets easier, and maintain traffic capacity and traffic flow. Examples include bulb-outs (curb extensions) and speed bumps.

Transportation Demand Management (TDM): A term applied to a broad range of strategies primarily intended to reduce the demand of the transportation system. Examples of TDM measures include carpools, vanpools, walking, bicycling, public transportation, telecommuting, and alternative work schedules.

Transportation Systems Management (TSM): An opportunity to increase the efficiency and safety of the transportation infrastructure without widening streets through innovative technologies and effective prioritization of resource use. A few examples of TSM measures include Intelligent Transportation Systems (ITS) strategies (real-time traffic operations, variable message signs, etc.), interconnecting existing traffic signals, optimizing the signal timings, access management to control access onto major streets, preferential treatment for HOVs, ramp metering, etc.

Transtension: Oblique tension or deformation to the primary force or fault.

Turbidity: A measure of the amount of material suspended in the water. Increasing the turbidity of the water decreases the amount of light that penetrates the water column. Very high levels of turbidity can be harmful to aquatic life.

Vessel: Ships and boats.

Volume to Capacity (V/C) Ratio: The ratio of road segment or intersection traffic volumes to the design capacity of the road segment or intersection. It is used to provide an estimate of the level of service of the road segment or intersection.

CHAPTER 10
REFERENCES

Allen, L. G., A.M. Findlay, and C. M. Phalen. 2002. Structure and Standing Stock of the Fish Assemblages of San Diego Bay, California from 1994-1999. Bulletin of the Southern California Academy of Sciences 101:49-85.

Bartol, S.M., J.A. Musick and M. Lenhardt. 1999. Auditory evoked potentials of the loggerhead sea turtle (Caretta caretta). Copeia 4:836.

California Air Resources Board (CARB). 2008a. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Last updated 26 June, Accessed on 10 July.

_____. 2008b. State Nonattainment Designations. http://www.arb.ca.gov/desig/adm/adm.htm. Accessed on 17 March.

_____. 2008c. 2006 Estimated Annual Average Emissions for San Diego Air Basin. http://www.arb.ca.gov/ei/emissiondata.htm. Accessed on 17 March.

_____. 2008d. Air Quality Data. http://www.arb.ca.gov/adam/cgi-bin/db2www/adamtop4b.d2w/start. Accessed on 17 March.

_____. 2008e. 2010 Almanac Emission Projection Data, San Diego Air Basin. http://www.arb.ca.gov/app/emsinv/emssumcat.php. Accessed on 17 March.

California Department of Boating and Waterways. Marine Sciences Institute. U.C. Santa Cruz.

CALTRANS. 1998. Technical Noise Supplement. October 1998.

CALTRANS. 2008. CALTRANS Environmental Handbook, Volume I: Guidance for Compliance.

Command Navy Region Southwest (CNRSW). 2008. Personal email communication between Paul Patricio, Harbor Master CNRSW Port Operations, and Richard Stolpe, Environmental Planner, TEC Inc. 1 May.

Carretta, J.V., K.A. Forney, M.M. Muto, J. Barlow, J. Baker, B. Hanson, and M.S. Lowry. 2007. U.S. Pacific Marine Mammal Stock Assessments: 2006. U.S. Dep. Commer. NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-398. 312 pp.

DON. 1992. Draft Programmatic EIS for Dredged Material Disposal (from 3 volumes). Southwest Division, Naval Facilities Engineering Command, San Diego, CA.

_____. 1994. Waterbird Survey North and Central San Diego Bay, 1993. Prepared by U.S. Department of the Navy Southwest Division. 20 May.

_____. 1995. Final Environmental Impact Statement for the Development of Facilities in San Diego/Coronado to Support the Homeporting of One Nimitz Class Aircraft Carrier. Naval Facilities Engineering Command, Southwest Division.

_____. 1999. Final Environmental Impact Statement for Developing Home Port Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet.

_____. 2004. Memorandum of Understanding Between U.S. Fish and Wildlife Service and the U.S. Navy Concerning Conservation of the Endangered California Least Tern in San Diego Bay, California. June.

_____. 2007. Final Environmental Assessment. Quaywall Repair (Special Project RM11-05), Naval Air Station North Island, Coronado, California. October.

_____. 2008a. Personal Communication with Mitch Perdue, NAVFAC SW. February.

DON. 2008b. Base Realignment and Closure (BRAC) Actions Relocating Naval Station Ingleside, Texas EMR and AMIMS Systems to San Diego, California. Final Environmental Assessment. NAVFAC Southwest, Coastal IPT. February.

DON and San Diego Unified Port District (SDUPD). 2000. San Diego Bay Integrated Natural Resources Management Plan. September.

EPA. 2008. Currently Designated Nonattainment Areas for All Criteria Pollutants. http://www.epa.gov/air/oaqps/greenbk/index.html. Accessed on 17 March.

Flegal, A.R., and S.A. Sañudo-Wilhelmy. 1993. Comparable Levels of Trace Metal Contamination in Two Semi-Enclosed Embayments: San Diego Bay and South San Francisco Bay. *Environmental Science and Technology* 27: 1934-1976.

Flick, R.E., Armstrong, G.A., and Sterrettt, E.H. 1991. Shoreline Erosion Assessment and Atlas of the San Diego Region, in The California Coastal Zone Experience. Ed. By Orville T. Magoon. American Society of Civil Engineers. New York. 1991.

Fugro Pelagos. 2006. Bathymetric & Quaywall Survey of Berths L, M, N, O, and P, Naval Air Station North Island, Coronado, California. Final Report Submittal FP-6124-002. 7 March.

Fulton-Bennet, K., and Griggs, G.B. 1986. Coastal Protection Structures and Their Effectiveness.

Gabrielson, E. 2002. Mission Bay Aquatic Park: The History of Planning and Land Acquisitions. Journal of San Diego History. Winter. 48:1.

Griggs, G.B., and Fulton-Bennet, K. 1988. Rip Rap Revetments and Seawalls and Their Effectiveness Along the Central Coast. Shore and Beach. April.

Griggs, G.B., Pepper, J.E., and Jordan, M.E. 1991. California Coastal Hazard Policies: A Critique, in The California Coastal Zone Experience. Ed. By Orville T. Magoon. American Society of Civil Engineers. New York. 1991.

Hammond, R. R., and W. J. Wallace. 1982. Seabed Drifter Movement in San Diego Bay and Adjacent Waters. *East. Coast. Shelf Sci.* 14: 623-634.

Hiscock, K., H. Tyler-Walters, and H. Jones. 2002. High Level Environmental Screening Study for Offshore Wind Farm Developments – Marine Habitats and Species Project. Report from the Marine Biological Association to The Department of Trade and Industry New & Renewable Energy Programme.

Historical Maps of San Diego. 2004. Website maintained by Steven Schoenherr. Revised 1 November. Available at: http://history.sandiego.edu/GEN/maps/list-sandiego.html. Accessed: 5 March 2008.

HSC. 2005. San Diego Harbor Safety Plan. July.

Inman, D.L. 1991. Budget of Sediment and Prediction of The Future State of The Coast. Coast of California Storm and Tidal Waves Study "State of the Coast" Report. San Diego Region. Available at: http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1045&context=sio. Accessed: 25 February 2008.

Kennedy, M.P., and Clarke, S.H. 2001. Late Quaternary Faulting in San Diego Bay and Hazard to theCoronado Bridge. California Geology. Vol. 55. No. 4. July/August. Available at: http://www.conservation.ca.gov/cgs/information/publications/cg_pdfs/Documents/7801_CG.pdf. Accessed: 28 February 2008.

Ketten, D.R. and S.M. Bartol. 1995. Functional measures of sea turtle hearing. Office of Naval Research Final Report. Retrieved from: http://handle.dtic.mil/100.2/ADA446809.

Kuhn, G.G. and Shepard, F.P. 1981. Should Southern California Build Defenses Against Violent Storms Resulting in Lowland Flooding as Discovered in Records of Past Century. Shore and Beach. ol. 49. No. 4. October.

_____. 1984. Sea Cliffs, Beaches, and Coastal Valleys of San Diego County: Some Amazing Histories and Some Horrifying Implications. UC Press. Berkeley, CA. Available online at: http://ark.cdlib.org/ark:/13030/ft0h4nb01z/. Accessed: 29 February 2008.

Largier, J.L. 1995. San Diego Bay Circulation. Final Report prepared for the California State Water Resources Control Board and California Regional Water Quality Control Board, San Diego Region.

Marshall, M. 2006. The Geology and Tectonic Setting of San Diego Bay, and that of the Peninsular Ranges and Salton Trough, Southern California. Association of Earth Science Editors 2006 Annual Meeting Field Trip Presentation. Available at: http://aese2006.geology-guy.com/sd_geology_marshall.htm. Accessed: 28 February 2008.

NAVFAC SW. 2008a. Personal communication with R. Henderson, NASNI AICUZ Program Specialist. 17 March.

NAVFAC SW. 2008b. PowerPoint slide presentation by Mitch Perdue, Senior Biologist, NAVFAC SW Coastal IPT. Provided to TEC Inc. on 23 May.

Naval Operations (NAVOPS). 2008. Personal communication between CTR CNAF Gary Kohler, and Jason Taylor of TEC Inc. 12 March.

NMFS. 2006. Taking of Marine Mammals Incidental to Specified Activities; Harbor Redevelopment Project, Moss Landing Harbor, California. Federal Register 71:64944-64946.

NMFS. 2008. San Francisco Bay Project Impact Evaluation System: Pile Driving. Retrieved from: http://mapping.orr.noaa.gov/website/portal/pies/piledriving.html. Accessed 21 April.

O'Connor, T.P., and B. Beliaeff. 1995. *Recent Trends in Coastal Environmental Quality: Results from the Mussel Watch Project*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service. Silver Spring, MD. Pethick, J. 1984. An Introduction to Coastal Geomorpholoy. 2001 Impression. Oxford University Press. New York.

PFMC. 1998. Essential Fish Habitat Coastal Pelagic Species. Modified from: Coastal Pelagic Species Management Plan [Amendment 8 to the Northern Anchovy Fishery Management Plan]; Pacific Fishery Management Council. Portland, OR.

_____. 2006. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon and Washington, as amended through Amendment 19. PFMC. Portland, OR.

_____. 2007. Status of the Pacific Coast coastal pelagic species fishery and recommended acceptable biological catches. Stock assessment and fishery evaluation - 2007. Pacific Fishery Management Council. Portland, OR.

Pondella, D.J. and L.G. Allen. 2003. Fish Utilization of Artificial Reef/Fisheries Enhancement Structures at the Navy Homeporting Mitigation Site, North Island, California.

Popper, A. N., T.J. Carlson, A.D. Hawkins, B.L. Southall, R.L. Gentry. 2006. *Interim Criteria* for Injury of Fish Exposed to Pile Driving Operations: A White Paper. Retrieved from: http://www.wsdot.wa.gov/NR/rdonlyres/84A6313A-9297-42C9-BFA6-750A691E1DB3/0/BA_PileDrivingInterimCriteria.pdf. Accessed 21 April.

Popper, A.N. 2008. Effects of Mid- and High-Frequency Sonars on Fish. Technical report prepared for Naval Undersea Warfare Center Division Newport, Rhode Island. February 21.

Pryde, P.R., ed. 1992. San Diego: An Introduction to the Region. 3rd Ed. Kendall/Hunt Publishing Co. Dubuque, IA. Regional Water Quality Control Board (RWQCB). 1998. Water Quality Control Plan for the San Diego Basin. Prepared by California Regional Water Quality Control Board, San Diego Region.

SDUPD. 1980. Final Environmental Impact Report on the Port Master Plan, San Diego Unified Port District. Environmental Management Department.

SDUPD. 1999. Commemorating the Port of San Diego's Passage in Time. 1998-99 Annual Meeting slide show. Available at: http://www.portofsandiego.org/sandiego_about/assets/documents/annual_report/AnnualReport9899.pdf. Accessed: 18 March 2008.

Sudsbury, E. 1992. Jack Rabbits to Jets: The History of NAS North Island, San Diego, California. 2nd Ed. San Diego Publishing Co. San Diego, CA.

Tait, J.F., and Griggs, G.B. 1990. Beach Response to the Presence of a Sewall. Shore and Beach. April.

TEC Inc. 2008. In-house historic files for Coronado and North Island.

USACE. 1955. United States Corps of Engineers, Los Angeles District, District Engineer, Arthur H. Frye Jr., Colonel. Beach Erosion Control Report on Cooperative Study of Oceanside, Ocean Beach, Imperial Beach, and Coronado, San Diego County, California, (Contract No. W-04-193-Eng-5196, Appendix IV), April 11, 1955.

_____. 2000. Coronado Shoreline Initial Appraisal Report for Coronado Shoreline San Diego County, California. 7 December.

_____. 2005. Reconnaissance Study Initial Appraisal Report for Coronado Shoreline San Diego County, California. Draft. September.

USFWS. 1999. Endangered and Threatened Wildlife and Plants; Final Rule To Remove the American Peregrine Falcon From the Federal List of Endangered and Threatened Wildlife, and To Remove the Similarity of Appearance Provision for Free-Flying Peregrines in the Conterminous United States. Federal Register 64(164):46542-46558.

_____. 2006. Endangered and Threatened Wildlife and Plants; Proposed Special Rule Pursuant to Section 4(d) of the Endangered Species Act for the Pacific Coast Distinct Population Segment of the Western Snowy Plover. Federal Register 71(77):20625-20636.

_____. 2007. Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (*Charadrius alexandrines nivosus*) Volume 1: Recovery Plan. Sacramento, CA. 13 August.

_____. 2008. Endangered and Threatened Wildlife and Plants; 12-Month Petition Finding and Proposed Rule To Remove the Brown Pelican (*Pelecanus occidentalis*) From the Federal List of Endangered and Threatened Wildlife. Federal Register 73(34):9408-9433.

Vantuna Research Group. 2005. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California, for Surveys Conducted in April and July 2005. Los Angeles, CA. February.

Wang, P. F., R. T. Cheng, K. Richter, E. S. Gross, D. Sutton, and J. Gartner. 1998. Modeling Tidal Hydrodynamics of San Diego Bay, California. J. Amer W Res Assoc 34(5)1123-1140.

Wiegel, R.L. 2002. Large Quantity of Sand Blown Inland Over Top of Seawall. Shore and Beach. Vol. 70. No. 2. April.

Willis C.M., and Griggs, G.B. 2003. Reductions in Fluvial Sediment Discharge By Coastal Dams in California and Implications for Beach Sustainability. Journal of Geology. Vol. 111. No. 2. March

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