

**Final Environmental Impact Statement
FORT ROSECRANS NATIONAL CEMETERY ANNEX**



Prepared for:
**Department of the Navy
and
Department of Veterans Affairs**

July 2007

**FINAL ENVIRONMENTAL IMPACT STATEMENT
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ENVIRONMENTAL IMPACT STATEMENT
for
FORT ROSECRANS NATIONAL CEMETERY ANNEX
AT MCAS MIRAMAR
County of San Diego, California

Lead Agency:
Department of the Navy
Department of Veterans Affairs

ABSTRACT

This Environmental Impact Statement (EIS) evaluates the potential environmental effects of the proposed land use agreement between the United States Department of the Navy (DON) and the United States Department of Veterans Affairs (VA) National Cemetery Administration and the construction and operation of an annex to the existing Fort Rosecrans National Cemetery at Point Loma in San Diego, California. The annex would be located at Marine Corps Air Station Miramar in San Diego. This EIS has been prepared by DON and VA in accordance with the National Environment Policy Act of 1969 (42 USC § 4321-4370d (1994)). This EIS analyzes two alternative sites and the No Action Alternative.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACOE	U.S. Army Corps of Engineers
ADT	Average Daily Traffic
AICUZ	Air Installations Compatible Use Zones
AMSL	above mean sea level
APCD	Air Pollution Control District
APE	Area of Potential Effect
APZ	Accident Potential Zone
ARFF	Aircraft Rescue and Firefighting
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
BEAP	Base Exterior Architectural Plan
BAGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
B.P.	before present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standard
CAGN	coastal California gnatcatcher
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQ	Counsel of Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society

CO	carbon monoxide
CWA	Clean Water Act
CZ	Clear Zone
dB	decibel
dBA	A-weighted decibel
DoD	Department of Defense
DON	Department of the Navy
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GIS	geographic information system
HA	Hydrologic Area
HSA	Hydrologic Subarea
HU	Hydrologic Unit
I-15	Interstate 15
I-805	Interstate 805
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
ITE	Institute of Traffic Engineers
kph	kilometers per hour
kV	kilovolt
LOS	level of service
MA	Management Area
MACT	maximum available control technology
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MCB	Marine Corps Base

MCRD	Marine Corps Recruit Depot
MEC	munitions and explosives of concern
mgd	million gallons per day
MHCP	Multiple Habitat Conservation Program
mph	miles per hour
MSCP	Multiple Species Conservation Program
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historical Places
NCA	National Cemetery Administration
NCCP	Natural Community Conservation Planning
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NOI	Notice of Intent
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O ₃	ozone
OPNAVINST	Office of the Chief of Naval Operations Instruction
PLWTP	Point Loma Wastewater Treatment Plant
PM ₁₀	particulate matter equal to or less than 10 microns in size
PM _{2.5}	particulate matter equal to or less than 2.5 microns in size
PMO	Provost Marshall's Office
PPV	Public Private Venture
PRG	Preliminary Remediation Goal
RFS	Riverside fairy shrimp
ROD	Record of Decision
ROG	reactive organic gas
RONA	Record of Non-Applicability

RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SD button-celery	San Diego button-celery
SD mesa mint	San Diego mesa mint
SDAB	San Diego Air Basin
SDAG	San Diego Association of Geologists
SDCWA	San Diego County Water Authority
SDFS	San Diego fairy shrimp
SDG&E	San Diego Gas and Electric
SDZ	Surface Danger Zone
SECNAVINST	Secretary of the Navy Instruction
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SR 52	State Route 52
SR 163	State Route 163
SWPPP	Storm Water Pollution Protection Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TERPS	Terminal Instrument Procedures
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USC	United States Code
v/c	volume to capacity
VA	Department of Veterans Affairs
°C	degrees Centigrade
°F	degrees Fahrenheit

EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Impact Statement (EIS) evaluates the potential environmental effects of a proposed land use agreement between the United States Department of the Navy (DON) and the United States Department of Veterans Affairs (VA) National Cemetery Administration (NCA) for a proposed annex to the existing Fort Rosecrans National Cemetery at Point Loma in San Diego, California. This EIS also evaluates the potential effects of construction and operation of the proposed cemetery annex. The annex would be located at Marine Corps Air Station (MCAS) Miramar in San Diego.

This EIS has been prepared by the DON and the VA in compliance with the National Environmental Policy Act (NEPA) (42 USC §§ 4321-4370d [1994]); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508 [1997]); DON Regulations Implementing NEPA (32 CFR Part 775 [2004]); the Secretary of the Navy Instruction Environmental Planning for Department of the Navy Actions (SECNAVINST 5090.6A); the U.S. Marine Corps Environmental Compliance and Protection Manual (Order P5090.2A [1998]); and the Environmental Effects of the Department of Veterans Affairs Actions (38 CFR 26). This EIS is intended to provide a full and fair discussion of environmental impacts associated with a range of alternatives and to inform decision-makers and the public. This EIS will be used in conjunction with other relevant materials to plan actions and to make decisions.

The mission of the NCA is to “honor veterans with a final resting place and lasting memorials that commemorate their service to our nation.” In fulfillment of this mission, the NCA provides cemetery services to veterans and other eligible persons. Since 1973, the annual interment rate in VA national cemeteries has increased by more than 150 percent, from 36,400 per year to more than 93,000 per year in 2004. Interments are expected to keep increasing until 2008. The upward trend in veteran deaths results in a corresponding increase in the demand for interments in national cemeteries.

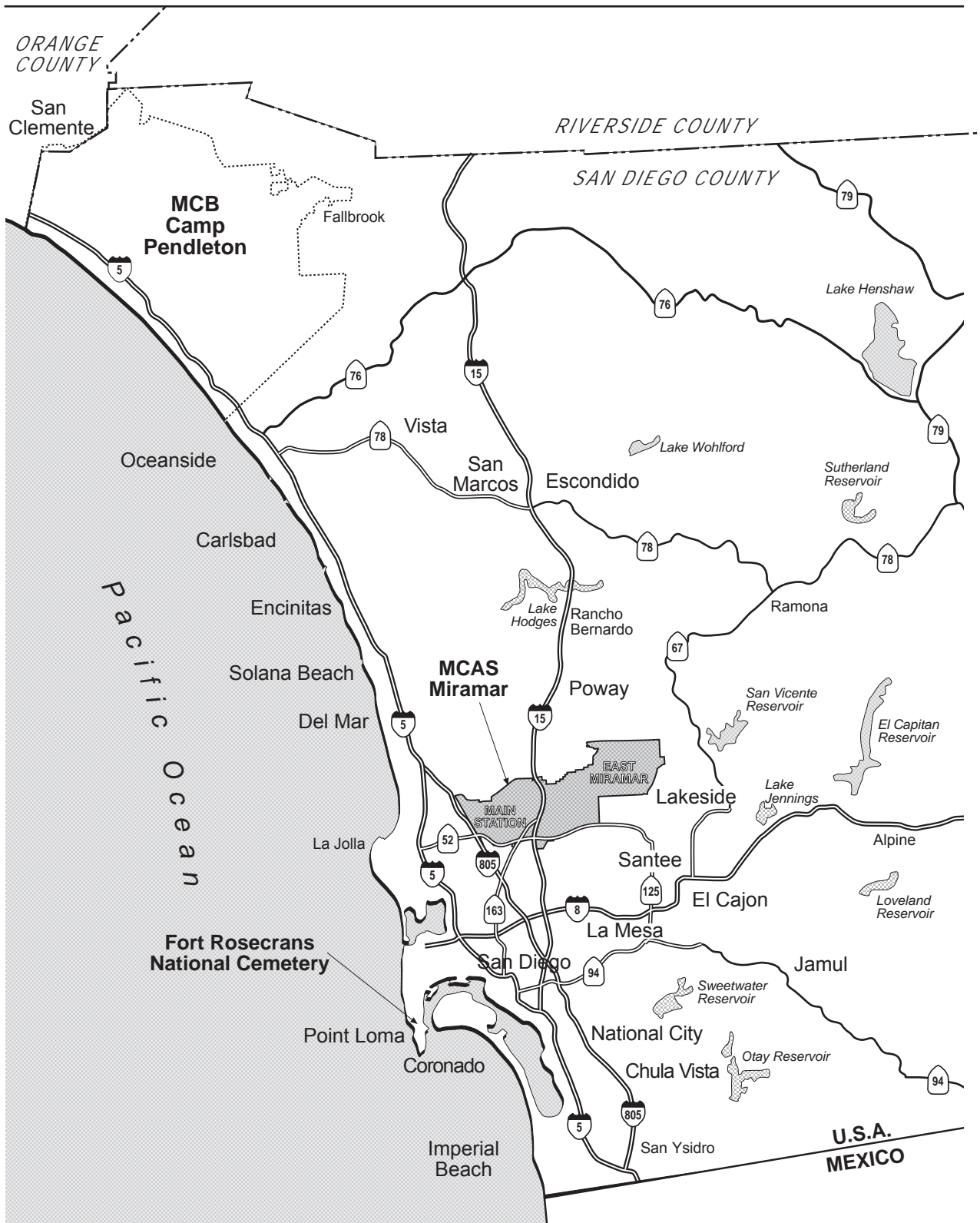
Experience and recent historical data have shown that over 80 percent of persons interred in national cemeteries resided within 75 miles (120 kilometers) of the cemetery at the time of death. Therefore, the NCA considers reasonable access to burial benefits to mean that a first interment option, for casketed or cremated remains (also referred to as “cremains”) in a national or state

veterans' cemetery, is available within 75 miles (120 kilometers) of the veteran's place of residence. There are two other national cemeteries in southern California: Los Angeles National Cemetery, located in western Los Angeles approximately 130 miles (209 kilometers) from San Diego, and Riverside National Cemetery, located adjacent to March Air Reserve Base approximately 90 miles (145 kilometers) from San Diego. These two cemeteries do not meet the NCA's definition of reasonable distance for burial benefits for San Diego veterans.

The VA operates Fort Rosecrans National Cemetery, a 77-acre (31-hectare) site located in the center of the Point Loma peninsula in San Diego, California (Figure ES-1). Fort Rosecrans National Cemetery is located within a federal land withdrawal held by the Navy for military purposes. The National Cemetery Act of 1973 transferred responsibility for this land to the VA. It is the only national cemetery in San Diego County and has been closed to first interment casketed burials since 1966. Approximately 7 acres (3 hectares) of additional land were acquired from Naval Base Point Loma in 2002. The NCA recently completed the construction of columbarium niches to provide cremation burial options to the San Diego veteran population. With the availability of these columbarium niches as a burial option, the demand has been high. The NCA has identified a need for additional burial space for the 253,000 San Diego area military veterans. The NCA projects that approximately 22 percent (or 57,000) of the 253,000 San Diego area veterans would require interment in the next 20 years and approximately 35 percent (or nearly 90,000) would require interment by 2035. Accordingly, with this high demand, these columbarium niches are being rapidly depleted as the only first interment burial option available at this cemetery, and the niches will only provide space until 2008. Since no additional land is available for expansion at Fort Rosecrans or Naval Base Point Loma, and the NCA would not site a new cemetery in the same service area of an operating national cemetery, a proposed land use agreement between the DON and NCA has identified four potential sites at MCAS Miramar for the construction and operation of an annex to Fort Rosecrans National Cemetery. MCAS Miramar is located approximately 12 miles (19 kilometers) northeast of Fort Rosecrans National Cemetery, 13 miles (21 kilometers) north of downtown San Diego, and approximately 4 miles (6.4 kilometers) east of the Pacific Ocean. MCAS Miramar encompasses over 23,015 acres (9,314 hectares).

THE PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to meet the mission of the NCA to provide needed burial space on federal land for military veterans in the San Diego area. This EIS is prepared jointly by the VA and the DON because the nature of the Proposed Action involves use of DON property for VA purposes. The NCA has identified a need for additional burial space for the 253,000



No Scale

**Figure ES-1
Regional Map**

San Diego area military veterans for the next 20 to 30 years. Fort Rosecrans National Cemetery, the only national cemetery in San Diego County, has been closed to casketed burials since 1966. It is scheduled to be closed to burials of cremated remains by 2008 and has no additional land available for expansion. Therefore, an annex to Fort Rosecrans National Cemetery is needed for the San Diego area. The proposed annex would be managed by the same staff that manages Fort Rosecrans National Cemetery. The distance the staff would need to travel between the cemetery and the annex must be minimized to be within 20 miles (32 kilometers) for operational efficiency.

PUBLIC INVOLVEMENT PROCESS

The EIS process is designed to involve the public in federal decision-making. Comments from regulatory agencies and the public were solicited during the public scoping period to help identify the primary issues associated with implementation of the Proposed Action and to consider alternatives. CEQ regulations implementing NEPA (40 CFR §1501.7) require an early and open process for determining the scope of issues that should be addressed in an EIS. The DON and the VA initiated the scoping process on 12 October 2005 by publishing a Notice of Intent (NOI) to prepare an EIS in the Federal Register (Volume 64, Number 18), and by sending copies of the NOI to federal, state, and local agencies, and other parties known or expected to be concerned about the Proposed Action. The NOI is included in Appendix A and the agencies notified are included in Table ES-1.

Table ES-1
Local, State, and Federal Agencies Distribution List

U.S. Department of the Interior
U.S. Environmental Protection Agency
U.S. Army Corps of Engineers
California Department of Fish and Game
State Historic Preservation Officer
California Regional Water Quality Control Board
California Air Resources Board
California Water Resources Control Board
California Transportation Commission
California Department of Transportation, District 11
San Diego County Air Pollution Control District
City of San Diego

A public scoping meeting was held on 2 November 2005 to inform the public about the Proposed Action and to solicit the public's participation and comments. The scoping meeting was held at

the Holiday Inn Express in the San Diego community of Mira Mesa. Approximately 10 people attended the meeting and none of those provided public testimony. A total of five written comment letters were received during the scoping period.

A Notice of Availability (NOA) for the Draft EIS was published in the Federal Register on 27 October 2006. Public notices were also published in local newspapers. Known affected agencies, organizations, and persons who may have an interest in the cemetery annex project were provided with a copy of this EIS. Copies were also provided to local library branches.

A public meeting was held during the 45-day public review period at the Holiday Inn Select in the San Diego community of Mira Mesa. Approximately 10 people attended the meeting and 2 people gave oral testimony. A total of eight written comment letters were received during the public comment period.

The Final EIS incorporates and responds to comments received on the Draft EIS. The NOA of the Final EIS will be published in the Federal Register and in public notices and press releases.

As required under NEPA, there will be a 30-day public review period with publication by U.S. Environmental Protection Agency of a Notice of Availability in the Federal Register. During this period, the public may comment on the adequacy of the final document including responses to comments. A final decision by the Secretary of the Navy will be made upon the conclusion of this public review period.

ALTERNATIVES

The Proposed Action assessed in this EIS includes both a land use agreement between the DON and the VA and the construction and operation of an annex to the existing Fort Rosecrans National Cemetery to serve veterans in the San Diego area. The DON and the VA have considered a number of alternative sites for this cemetery annex. The NCA prepared a Site Analysis in March 2002 and began its search for a potential cemetery annex site to serve the San Diego area military veterans. Large tracts of undeveloped federal land were needed for siting evaluations. Large tracts of undeveloped private land in San Diego County failed to meet the NCA's criteria for selection of a cemetery site, including costs, and thus purchase of private land was not feasible. In addition, funds are available to the NCA for new cemeteries but not for cemetery annexes. Therefore, the NCA focused its land acquisition search on federal lands through donations, property transfer, or land use agreements.

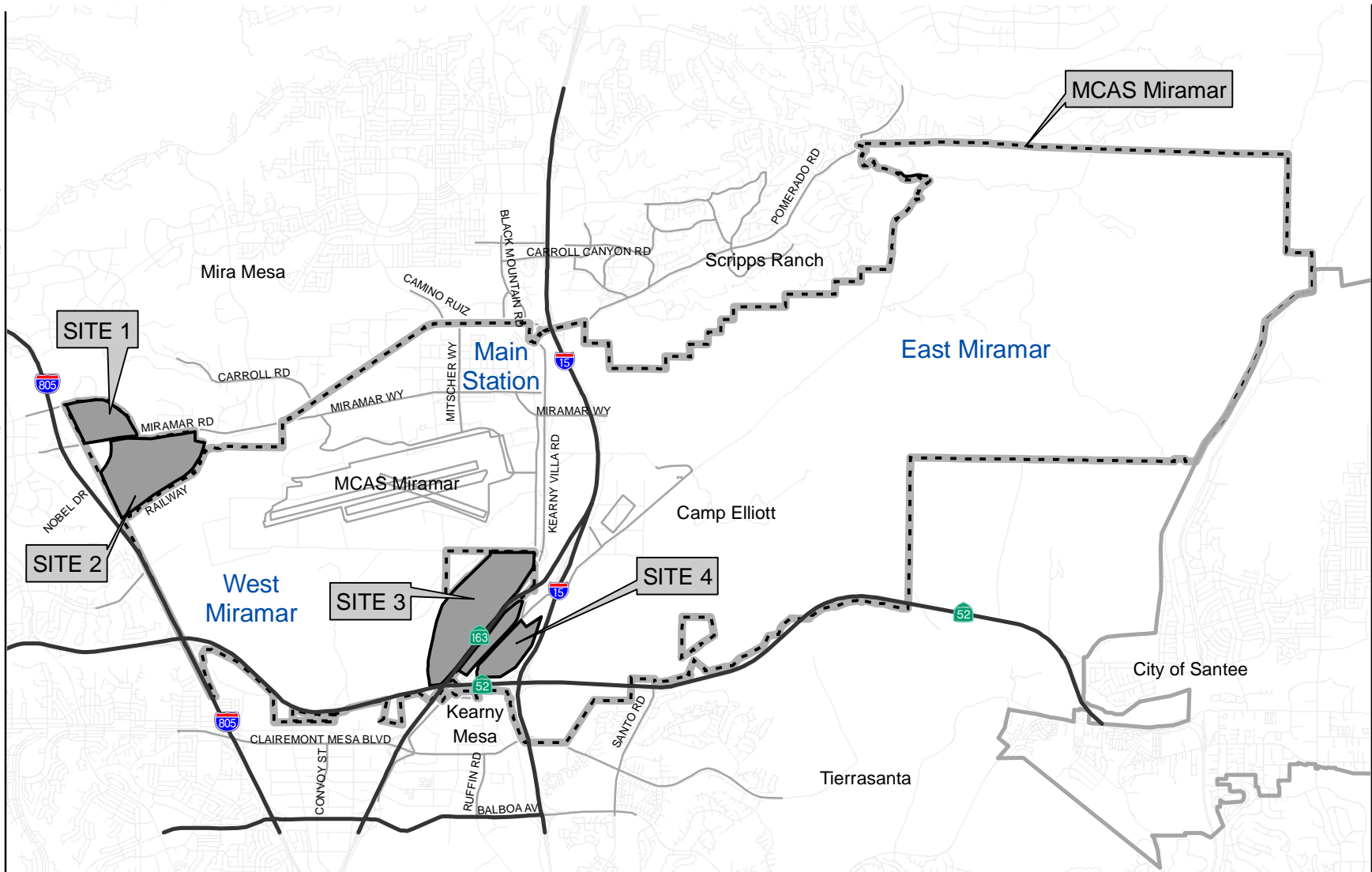
In support of the NCA and the need to provide veteran burial space, the DON identified four potential cemetery sites on MCAS Miramar (Figure ES-2). In 2005, the DON and VA prepared a siting study evaluating these four sites on MCAS Miramar. MCAS Miramar Sites 1 and 3 were eliminated from further consideration due to engineering, operational, and environmental constraints. Sites 2 and 4 are addressed in this EIS. MCAS Miramar is central to the San Diego region veteran population, is located within 15 miles (24 kilometers) of Fort Rosecrans National Cemetery, has sufficient land to evaluate alternative sites, and a land use agreement could be entered into between the federal agencies. No other suitable areas are available in the San Diego region that meet these criteria.

This EIS evaluates three alternatives in detail, which include two sites at MCAS Miramar and the No Action Alternative. All three alternatives are described below.

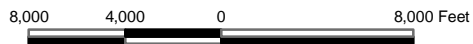
Site 2 Alternative (Preferred Alternative)

Site 2 is located in the northwest portion of MCAS Miramar, south of Miramar Road, east of Interstate 805 and Nobel Drive (Figure ES-3). This site is approximately 323 acres (131 hectares), of which approximately 214 acres (87 hectares) would be developed.

The Proposed Action would be developed in phases over a 30-year planning period to provide 50,000 casketed gravesites and 40,000 columbarium niches. During the first phase of development, the infrastructure required for the cemetery to function would be built, and selected areas of the site would be open to burials. The first phase would consist of the first 10-year burial development and would be designed to accommodate 12,500 full-casketed gravesites, and approximately 10,000 columbarium niches for cremains. The remainder of the site would be developed in future 10-year phased projects. When developed gravesites near depletion, another phase of the cemetery annex would be developed for burials. The first interments are expected to take place in 2008. This alternative would meet the purpose and need by providing burial spaces to meet the needs of the San Diego area military veterans for the next 30 years.



Sources: SANDAG



Scale: 1:96,000; 1 inch = 8,000 feet

Figure ES-2
Cemetery Annex Site Boundaries
at MCAS Miramar

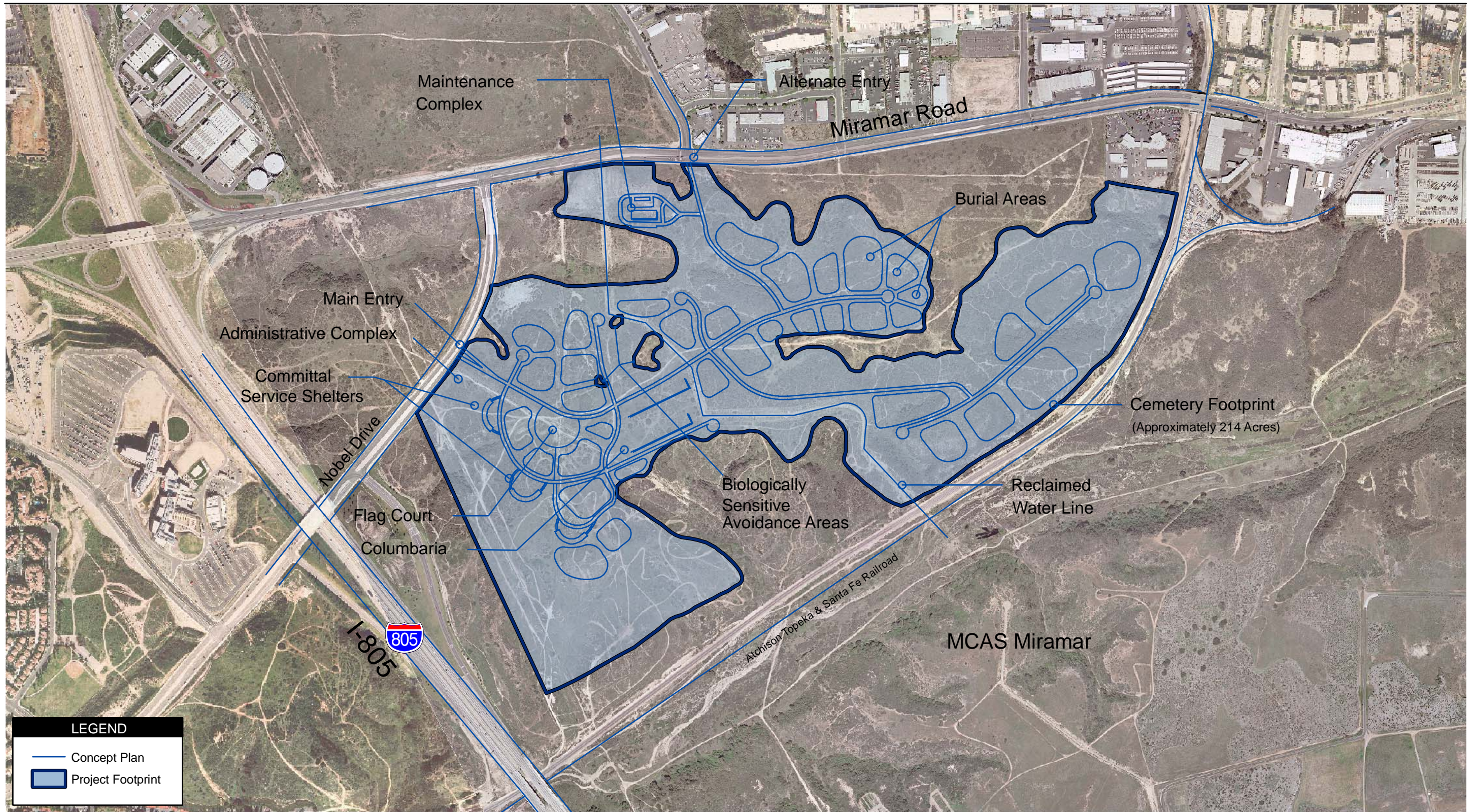
Master planning and design of the new cemetery annex will take place after a site has been selected, and the design will be tailored to fit its location. Initially the Site 2 development footprint matched the Site 2 boundary, which was approximately 323 acres (131 hectares) in size. Coordination between the NCA, MCAS Miramar, and the U.S. Fish and Wildlife Service (USFWS) resulted in several redesigns of the footprint to reduce potential impacts to sensitive biological resources including vernal pool basins and their associated watershed. The redesigns ultimately reduced the footprint to the currently proposed 214-acre (87-hectare) site (Figure ES-4), a reduction of 109 acres (44 hectares). While master planning and design of the new cemetery annex will take place after a site has been selected, the location of the facilities and burial sites to be developed will stay within the project footprint identified in this Final EIS.

The cemetery annex would be served by a hierarchy of roads organized around the entrance road leading into a network of primary roads, secondary roads, and service drives that would serve the various sections of the facility. The entrance road would provide access to Nobel Drive. A Public Information Center would be a visitor orientation facility that would be located near the main entrance and the cortege assembly area. It would be a combination building/covered plaza and would include a small visitor parking area separate from the cortege assembly area. The Public Information Center would be approximately 870 gross square feet (81 gross square meters) and would include public restrooms and an electronic gravesite locator for visitors. Two Committal Service Shelters would be provided for away-from-gravesite interment services. Separate Administrative and Maintenance Complexes would include the offices and workspaces of the cemetery staff. The Administrative Complex would include office space and parking for visitors and staff. The Maintenance Complex would include a maintenance yard of sufficient size (approximately 13,700 square feet [1,273 square meters]) to accommodate the unloading of a tractor-trailer truck. The cemetery annex would include signage, benches, recycling and trash receptacles, and flower containers.

Site 4 Alternative

Site 4 is approximately 175 acres (71 hectares), of which approximately 90 acres (36 hectares) would be developed. Site 4 is located in the south-central portion of MCAS Miramar. The site is bounded by State Route 163 to the west, State Route 52 to the south, and Interstate 15 (I-15) to the east. Kearny Villa Road traverses the site in a north-south direction and provides access.

The Site 4 Alternative would be developed similar to the Site 2 Alternative. Due to the limited size of Site 4, the maximum number of full-casketed gravesites would be 31,000 and



LEGEND

- Concept Plan
- Project Footprint

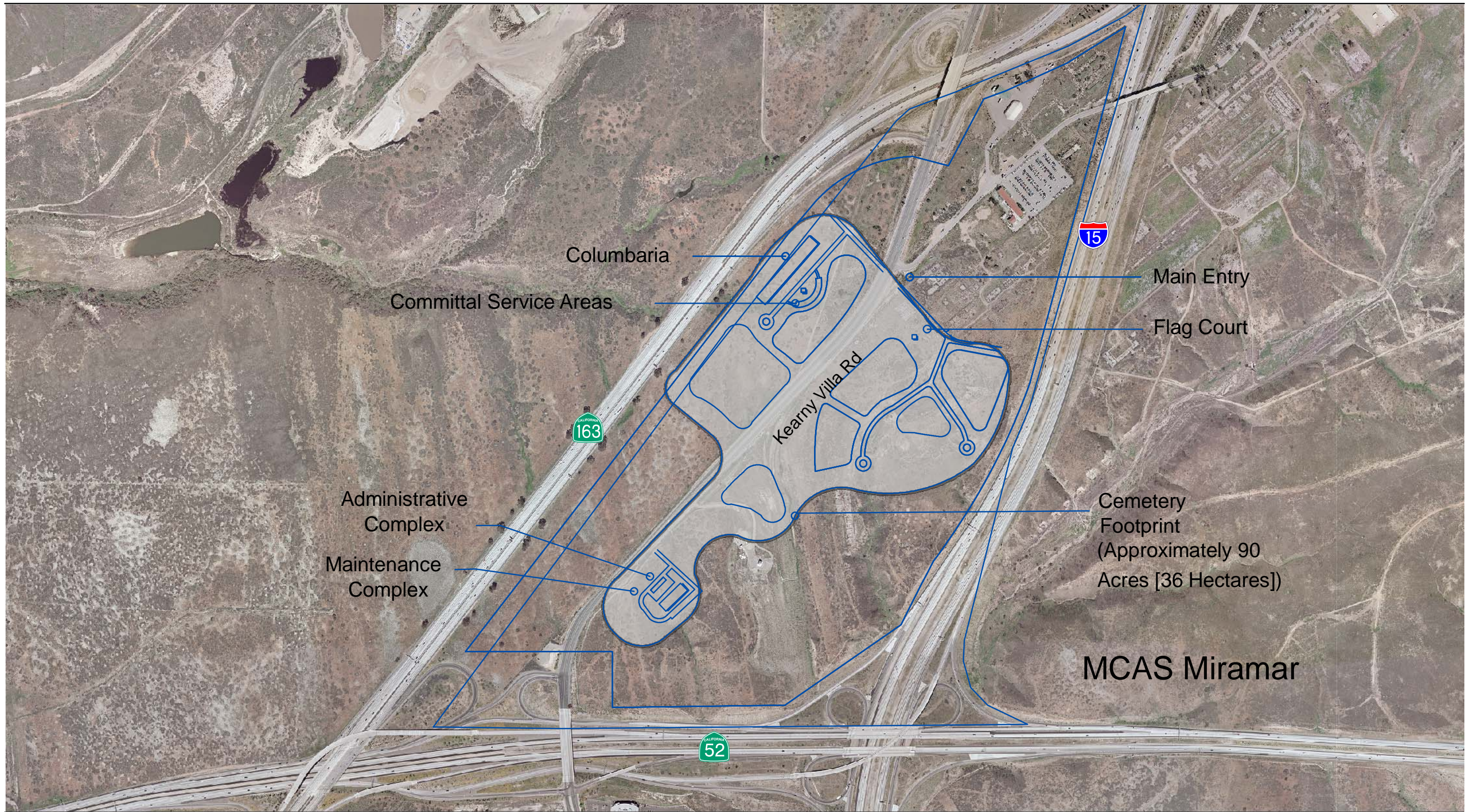
Source: MCAS Miramar 2005; Eagle Aerial 2004

700 350 0 700 Feet

Scale: 1 : 8,400; 1 inch = 700 feet

Figure ES-3
Site 2 Alternative Project Footprint
and Concept Plan

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Source: Eagle Aerial 2004
 700 350 0 700 Feet
 Scale: 1 : 8,400; 1 inch = 700 feet

Figure ES-4
Site 4 Alternative Project Footprint
and Concept Plan

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approximately 26,000 columbarium niches for cremated remains at build-out. Similar to the Site 2 Alternative, a majority of the graves would be in concrete grave liners. Similar to the Site 2 Alternative, master planning and design of the new cemetery annex will take place after a site has been selected, and the design will be tailored to fit its location. Therefore, a conceptual site plan has been prepared for this development alternative. This alternative would meet the purpose and need by providing burial space to meet the needs of the San Diego area military veterans for the next 20 years.

The main entrance area, designed to create a sense of arrival at a special place, would be provided from Kearny Villa Road. This entrance would be for funeral corteges and visitors only. A service entrance, also provided from Kearny Villa Road, would be for utilitarian access (maintenance, construction, delivery). All other aspects of the cemetery, including the Public Information Center, Administrative Complex and Maintenance Complex, Committal Service Areas, burial sections, cremated remains sites, and other common elements and features, would be similar to the Site 2 Alternative.

No Action Alternative

Under this alternative, there would be no land use agreement between the DON and the VA for the construction and operation of an annex to Fort Rosecrans National Cemetery to serve the 253,000 San Diego area veterans and their families. Since the only national cemetery (Fort Rosecrans National Cemetery) in San Diego County has been closed to casketed burials since 1966, is scheduled to be closed to burials of cremated remains by 2008, and has no additional land available for expansion, needed burial space for military veterans in the San Diego area would not be provided. Veterans in the San Diego area who desire a burial option in a veterans' cemetery would need to utilize Riverside National Cemetery and Los Angeles National Cemetery located at least 90 miles (145 kilometers) to the north, which is considered too distant to adequately service the veteran population in the San Diego metropolitan area. There are no state veterans' cemeteries in southern California. Given the distance to other national cemeteries and the existing federal legislation to provide burial opportunities for U.S. veterans and their immediate family dependents, the No Action Alternative would not meet the purpose and need and objectives for the Proposed Action or the mission of the NCA to serve veterans with burial facilities.

AFFECTED ENVIRONMENT

This EIS provides a description of the existing environmental conditions at the two MCAS Miramar sites. The discussion identifies a region of influence, or geographic area in which impacts are likely to occur, for each environmental resource. This document describes existing conditions for the following resource categories: land use; socioeconomics/environmental justice; utilities; public services; visual resources; cultural resources; biological resources; soils and geology; water resources; public health and safety; traffic/circulation; air quality; and noise.

ENVIRONMENTAL CONSEQUENCES

This EIS addresses the potential environmental consequences of a land use agreement and the construction and operation of the Fort Rosecrans National Cemetery Annex at MCAS Miramar. The report evaluates potential environmental impacts for each environmental resource category listed above in the Affected Environment section. Impacts associated with the Proposed Action are discussed, and mitigation measures, if necessary, are delineated.

The Site 2 Alternative would impact approximately 213.60 acres (86.44 hectares) of undeveloped land, including 17.16 acres (6.94 hectares) of regionally rare plant communities. Approximately 12.97 acres (5.23 hectares) of largely disturbed habitat recently occupied by coastal California gnatcatcher (*Polioptila californica californica*; CAGN) would also be impacted. Additionally, two vernal pools (0.010 acre [0.004 hectare]) and 27 man-made depressions (0.299 acre [0.121 hectare]) with San Diego fairy shrimp (*Branchinecta sandiegonensis*; SDFS) and 4 vernal pools with no listed species (0.013 acre [0.005 hectare]) would be directly impacted. Compensation would occur in compliance with the Integrated Natural Resources Management Plan (INRMP) and would include approximately 15.98 acres (6.46 hectares) of vegetation (coastal sage and chaparral), including 9.60 acres (3.88 hectares) for permanent direct impacts to recently occupied CAGN habitat. Compensation for permanent direct impacts to vernal pool species would include approximately 0.492 acre (0.199 hectare) of vernal pools and man-made depressions with SDFS, and 4 vernal pools with no listed species present. Development of Site 2 would impact five ephemeral drainages totaling approximately 3,333 feet (1,015 meters) and 0.230 acre (0.093 hectare). A wetland jurisdictional determination and delineation and detailed development plan would be required to determine which type of Clean Water Act permit would be necessary. This wetland assessment will consist of a jurisdictional determination to evaluate whether water bodies within the site that may be affected by site development are under federal jurisdiction, and for those that are, a delineation to determine the extent of jurisdictional waters, including wetlands, within proposed permanent and

temporary impact areas. A formal U.S. Army Corps of Engineers (ACOE) jurisdictional determination and delineation report for waters and wetlands will be required for submittal to the ACOE and USFWS to request their review and concurrence of the determination and delineation results. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The potential linear and acreage impacts to these ephemeral drainages may be considered more than minimal. Based on this information and the project plans, it is anticipated that the project's impacts to federal waters and wetlands would require an Individual Permit under the Clean Water Act. In addition, the submittal of an application for 401 water quality certification to the Regional Water Quality Control Board would be necessary. Mitigation measures in compliance with the INRMP and the Biological Opinion issued by USFWS (Appendix F) would be implemented to reduce the level of impact. These mitigation measures would be the responsibility of the NCA. Proposed measures are identified in Chapter 4.

The Proposed Action is subject to the General Conformity rule under Section 176(c) of the Clean Air Act. The forecast air emissions from the Site 2 Alternative would be less than the General Conformity Rule *de minimis* levels and less than 10 percent of the forecast area emissions. This alternative would conform to the State Implementation Plan, and a formal conformity determination would not be required.

Implementation of the Site 4 Alternative would result in potentially significant impacts to land use, biological resources, traffic/circulation, and public health and safety. Public gatherings of more than 25 people per acre in the Accident Potential Zone (APZ) I are incompatible with the MCAS Miramar Air Installation Compatible Use Zone (AICUZ) and are considered a significant land use and public health and safety impact.

The Site 4 Alternative would directly impact approximately 89.78 acres (36.33 hectares) of undeveloped land, including 12.57 acres (5.09 hectares) of regionally rare plant communities. Approximately 14.88 acres (6.03 hectares) of largely disturbed habitat recently occupied CAGN habitat would also be impacted. Additionally, 25 vernal pools (0.261 acre [0.106 hectare]) and 25 man-made depressions (0.324 acre [0.131 hectare]) with SDFS and/or SD mesa mint present, and 33 vernal pools (0.153 acre [0.062 hectare]) with no listed species would be directly impacted.

The Site 4 Alternative would have a significant impact at the SR 52 westbound ramps/Kearny Villa Road intersection in the near-term (Year 2010) scenario. This alternative would have a significant cumulative impact at the SR 52 eastbound off-ramp/Kearny Villa Road intersection

and at the SR 163 southbound ramps/Kearny Villa Road intersection in the horizon year (Year 2030).

Implementation of the mitigation measures described in Chapter 4 would reduce all impacts to below a level of significance with the exception of the land use and public health and safety impacts. These impacts are considered unavoidable.

The forecast air emissions from the Site 4 Alternative would be less than for the Site 2 Alternative. The Site 4 Alternative would conform to the State Implementation Plan, and a formal conformity determination would not be required.

The No Action Alternative would not result in any significant impacts.

CUMULATIVE IMPACTS

Federal Regulations Implementing the Procedural Provisions of NEPA (40 CFR §§ 1500-1508) and the U.S. Marine Corps Environmental Compliance and Protection Manual (MCO P5090.2A) require that the cumulative impacts of a proposed action be assessed. CEQ regulations implementing NEPA define a cumulative impact as an “impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions” (40 CFR § 1508.7). The regulations require that an EIS address cumulative impacts when they are significant.

Other actions in the vicinity of the Proposed Action that have occurred, are occurring, or may occur, could contribute to cumulative impacts. The contributions from past actions are reflected in the affected environment discussion in Chapter 3. Section 5.1 provides a description of ongoing and reasonably foreseeable actions that may also contribute to cumulative impacts, and Section 5.2 assesses cumulative impact by issue area. As analyzed in Section 5.2, the Proposed Action would not result in any significant cumulative impacts.

OTHER NEPA CONSIDERATIONS

This EIS addresses various other topics required by NEPA (42 USC § 4332 (1994)) to be analyzed in an EIS.

Unavoidable Adverse Environmental Effects

An EIS must describe any unavoidable adverse environmental effects for which either no mitigation or only partial mitigation is feasible. The impact analysis presented in Chapter 4 of this EIS indicates that an unavoidable adverse effect would occur with implementation of the Site 4 Alternatives even after implementation of stated mitigation measures.

Site 2 Alternative – There would be no significant unavoidable impacts as a result of the Site 2 Alternative.

Site 4 Alternative – The majority of this site is within the APZ I. Public gatherings of more than 25 people per acre in the APZ I would be incompatible with the MCAS Miramar AICUZ and would be considered a significant, unavoidable public health and safety impact. The only mitigation for this impact would be to restrict cemetery gatherings to 25 or fewer people or to have such gatherings at another MCAS Miramar or off-site location outside of APZ I. Having these gatherings away from the cemetery would further complicate the already stressful situation that the burial family is experiencing and is not considered reasonable by VA. Neither of these mitigation measures are acceptable national cemetery operational constraints.

No Action Alternative – There would be no significant unavoidable impacts as a result of the No Action Alternative.

Short-term Uses and Long-term Productivity

Implementation of the Proposed Action would result in impacts to the local environment that would affect both short-term uses and the maintenance and enhancement of long-term productivity. The action would commit the selected cemetery annex site for long-term cemetery usage and thereby preclude its use for alternate long-term or short-term purposes. However, the development of approximately 214 acres (87 hectares) of generally passive uses at MCAS Miramar would not significantly impact the use of natural resources on MCAS Miramar or pose a long-term risk to health and safety.

Development of a cemetery annex on MCAS Miramar would involve certain short-term activities that would provide employment opportunities for persons involved in building construction but may also create localized adverse environmental impacts. However, implementation of the construction, design, and mitigation measures proposed to minimize these impacts would reduce these negative impacts to less than significant levels. Balanced against the

loss of some open space or other uses of the proposed cemetery annex is the benefit that this action provides much needed burial options for veterans in the San Diego region.

Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to an action are those that are used on a long-term or permanent basis such as metal, wood, fuel, and other natural or cultural resources. Development of cemetery facilities on the proposed alternative sites would result in a markedly changed landscape and greater human activity on the proposed site. The commitment of land for development would be irretrievable and would preclude use of the proposed site for other purposes.

The construction of the Proposed Action would result in an irreversible commitment of building materials, fuel for construction vehicles and equipment, and other resources. The Proposed Action would commit workforce time for construction and, after project completion, maintenance. Increased energy and water consumption, as well as increased demand for services, would result from implementation of the Proposed Action. The Proposed Action would also result in increased vehicular traffic in the project vicinity of the cemetery annex alternative selected. These commitments of resources are neither unusual nor unexpected, given the nature of the action, and are generally understood to be tradeoffs for the benefits of the proposal if it is implemented.

Implementation of the No Action Alternative would not result in any environmental impacts since the cemetery annex would not be built at either Site 2 or Site 4.

Table 2-1 in Chapter 2 provides a detailed summary of the above-described impacts and associated mitigation measures.

CHAPTER 1.0

PURPOSE AND NEED

1.1 INTRODUCTION

This Environmental Impact Statement (EIS) evaluates the potential environmental effects of both a proposed land use agreement between the United States Department of the Navy (DON) and the United States Department of Veterans Affairs (VA) National Cemetery Administration (NCA) and the construction and operation of an annex to the existing Fort Rosecrans National Cemetery at Point Loma in San Diego, California. The annex would be located at Marine Corps Air Station (MCAS) Miramar in San Diego.

This EIS has been prepared by the DON and the VA in compliance with the National Environmental Policy Act (NEPA) (42 USC §§ 4321-4370d [1994]); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508 [2004]); DON Regulations Implementing NEPA (32 CFR Part 775 [1997]); the Secretary of the Navy Instruction Environmental Planning for Department of the Navy Actions (SECNAVINST 5090.6A); the U.S. Marine Corps Environmental Compliance and Protection Manual (Order P5090.2A [1998]); and the Environmental Effects of the Department of Veterans Affairs Actions (38 CFR 26). This EIS is intended to provide a full and fair discussion of environmental impacts associated with a range of alternatives and to inform decision-makers and the public. This EIS will be used in conjunction with other relevant materials to plan actions and to make decisions.

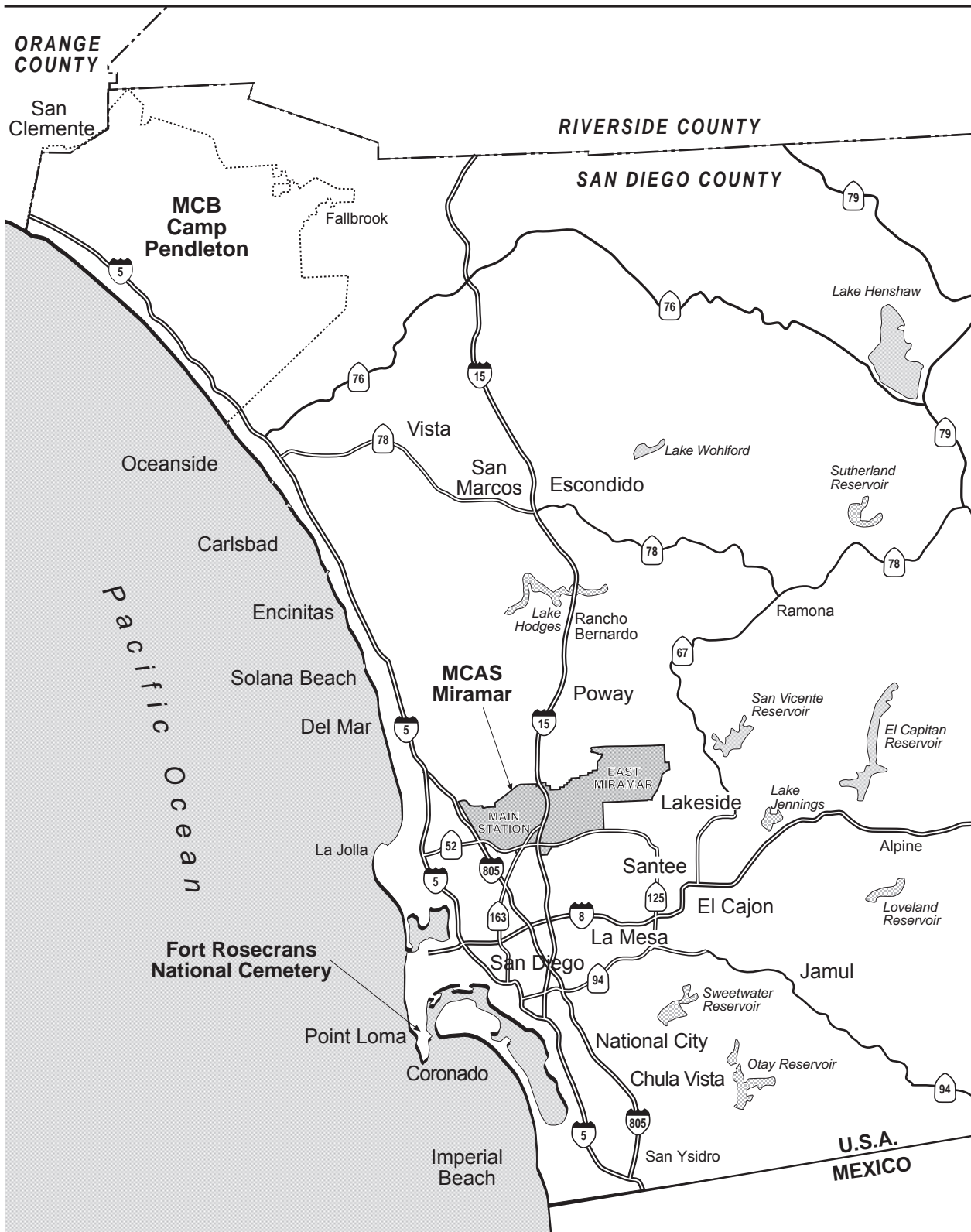
1.2 OVERVIEW

The mission of the NCA is to “honor veterans with a final resting place and lasting memorials that commemorate their service to our nation.” In fulfillment of this mission, the NCA provides cemetery services to veterans and other eligible persons pursuant to the provisions of the National Cemeteries Act of 1973 (Public Law 93-43) and related other statutory authority and regulations (Public Law 80-526, Public Law 80-260), Veterans’ Benefits Improvement and Health Care Authorization Act of 1986 (Public Law 99-576), Veterans Programs Enhancement Act of 1998 (Public Law 105-368), and National Cemetery Expansion Act of 2003 (Public Law 108-109). Cemetery services would include burials, interment of cremated remains, and memorial services.

Since 1973, the annual interment rate in VA national cemeteries has increased by more than 150 percent, from 36,400 per year to more than 93,000 per year in fiscal year 2004. Interments are expected to keep increasing until 2008. The upward trend in veteran deaths results in a corresponding increase in the demand for interments in national cemeteries. The NCA has a threefold strategy to provide burial space for veterans: (1) extend the service life of existing cemeteries, (2) develop new cemeteries, and (3) encourage states to build veterans' cemeteries.

Federal legislation, as listed above, requires that the VA provide burial benefits for U.S. veterans and their immediate family dependents at a national cemetery. It is one of the NCA's goals to ensure that eligible veterans have reasonable access to VA burial benefits. Experience and recent historical data have shown that over 80 percent of persons interred in national cemeteries resided within 75 miles (120 kilometers) of the cemetery at the time of death. Therefore, the NCA considers reasonable access to burial benefits to mean that a first interment option, for casketed or cremated remains (also referred to as "cremains") in a national or state veterans' cemetery, is available within 75 miles (120 kilometers) of the veteran's place of residence. There are two other national cemeteries in southern California: Los Angeles National Cemetery and Riverside National Cemetery. Los Angeles National Cemetery is located on South Sepulveda Boulevard in western Los Angeles, and Riverside National Cemetery is located adjacent to March Air Reserve Base in Riverside. With a San Diego area military veteran population of over 253,000 persons, approximately 2,000 people per year currently travel to Riverside from San Diego for the casketed burial option at Riverside National Cemetery because of unavailability of a casketed burial in a national cemetery in San Diego. Los Angeles National Cemetery and Riverside National Cemetery are located approximately 130 miles (209 kilometers) and 90 miles (145 kilometers) from San Diego, respectively, and thus do not meet the NCA's definition of reasonable access to burial benefits for San Diego veterans.

The VA operates Fort Rosecrans National Cemetery, located on Point Loma in San Diego, California (Figure 1-1). Fort Rosecrans National Cemetery was established as an Army Post Cemetery in the 1860s. It became Fort Rosecrans National Cemetery in 1934 and was included in the VA's NCA system in 1973. It is the only national cemetery in San Diego County and has been closed to first interment casketed burials since 1966. Approximately 7 acres (3 hectares) of additional land were acquired from Naval Base Point Loma in 2002 for the construction of columbarium niches to provide cremation burial options to the San Diego veteran population. With the availability of these columbarium niches as a burial option, the demand has been high. This has resulted in Fort Rosecrans National Cemetery being ranked the tenth-busiest national cemetery, according to interment workload within the NCA system of 120 national cemeteries. The NCA has identified a need for additional burial space for 253,000 San Diego area military



No Scale

Figure 1-1
Regional Map

veterans. The NCA projects that approximately 22 percent (or 57,000) of the 253,000 San Diego area veterans would require interment in the next 20 years and approximately 35 percent (or nearly 90,000) would require interment by 2035. Accordingly, with this high demand, these columbarium niches are being rapidly depleted as the only first interment burial option available at this cemetery, and the niches will only provide burial space until 2008. Since no additional land is available for cemetery expansion at Fort Rosecrans or Naval Base Point Loma, and the NCA would not site a new cemetery in the same service area of an operating national cemetery, a proposed land use agreement between the DON and NCA has identified four potential sites at MCAS Miramar for the construction and operation of an annex to Fort Rosecrans National Cemetery.

1.3 THE PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to meet the mission of the NCA to provide needed burial space on federal land for military veterans in the San Diego area. This EIS is prepared jointly by the VA and the DON because the nature of the Proposed Action involves use of DON property. The NCA has identified a need for additional burial space for 253,000 San Diego area military veterans for the next 20 to 30 years. Fort Rosecrans National Cemetery, the only national cemetery in San Diego County, has been closed to casketed burials since 1966. It is scheduled to be closed to cremated remains burials by 2008 and has no additional land available for expansion. Therefore, an annex to Fort Rosecrans National Cemetery is needed for the San Diego area.

1.4 NATIONAL CEMETERY DEVELOPMENT

When acquiring property to expand an existing cemetery, the NCA follows a six-step process:

Step 1: Preliminary Site Selection – The first preference for a site is to identify land that can be acquired adjacent to the existing cemetery. The NCA canvases the area for appropriate sites and identifies an initial set of potential sites. These potential sites are screened for suitability, and the most suitable two to five sites are advanced to the next stage. In this case, no additional land was available adjacent to Fort Rosecrans National Cemetery. The preliminary selection process within the San Diego area for the proposed Fort Rosecrans National Cemetery Annex is described in Chapter 2 of this EIS.

Step 2: Site Evaluation and Final Selection – The sites selected during Step 1 are evaluated in compliance with NEPA. A NEPA document must be prepared for a site to be considered for

acquisition and development. Once the NEPA process has been completed, the NCA makes a final recommendation to the Secretary of Veterans Affairs, who decides which of the considered sites will be acquired and developed. This EIS is being prepared in fulfillment of Step 2 of the process for the proposed Fort Rosecrans National Cemetery Annex.

Step 3: Site Acquisition – Site acquisition for the Fort Rosecrans National Cemetery Annex would be addressed as part of the proposed land use agreement between the DON and VA.

Step 4: Cemetery Master Plan and Design – After the DON and VA land use agreement is finalized, the VA selects an engineering and architectural firm to design the annex. A master plan is prepared for the entire site, and then detailed plans are prepared for the first phase of development. This first phase generally includes the first active burial section of the cemetery as well as the required supporting facilities and infrastructure. Subsequent development phases include additional burial areas and supporting infrastructure, as needed. Typically, each phase provides enough space for a 10-year period of use. Master planning is expected to begin in mid-2007.

Step 5: Construction Documents Preparation – Construction documents for development of Phase 1 are then prepared. These documents serve as a basis for the selection of a contractor. For the proposed Fort Rosecrans National Cemetery Annex, this is expected to begin in late 2007.

Step 6: Construction – The NCA solicits bids from contractors; the bidding and award process takes about 3 months; and construction of Phase 1 generally requires 2 years. For the Proposed Action, construction and the first interments are expected in 2008.

1.5 PROJECT LOCATION AND SETTING

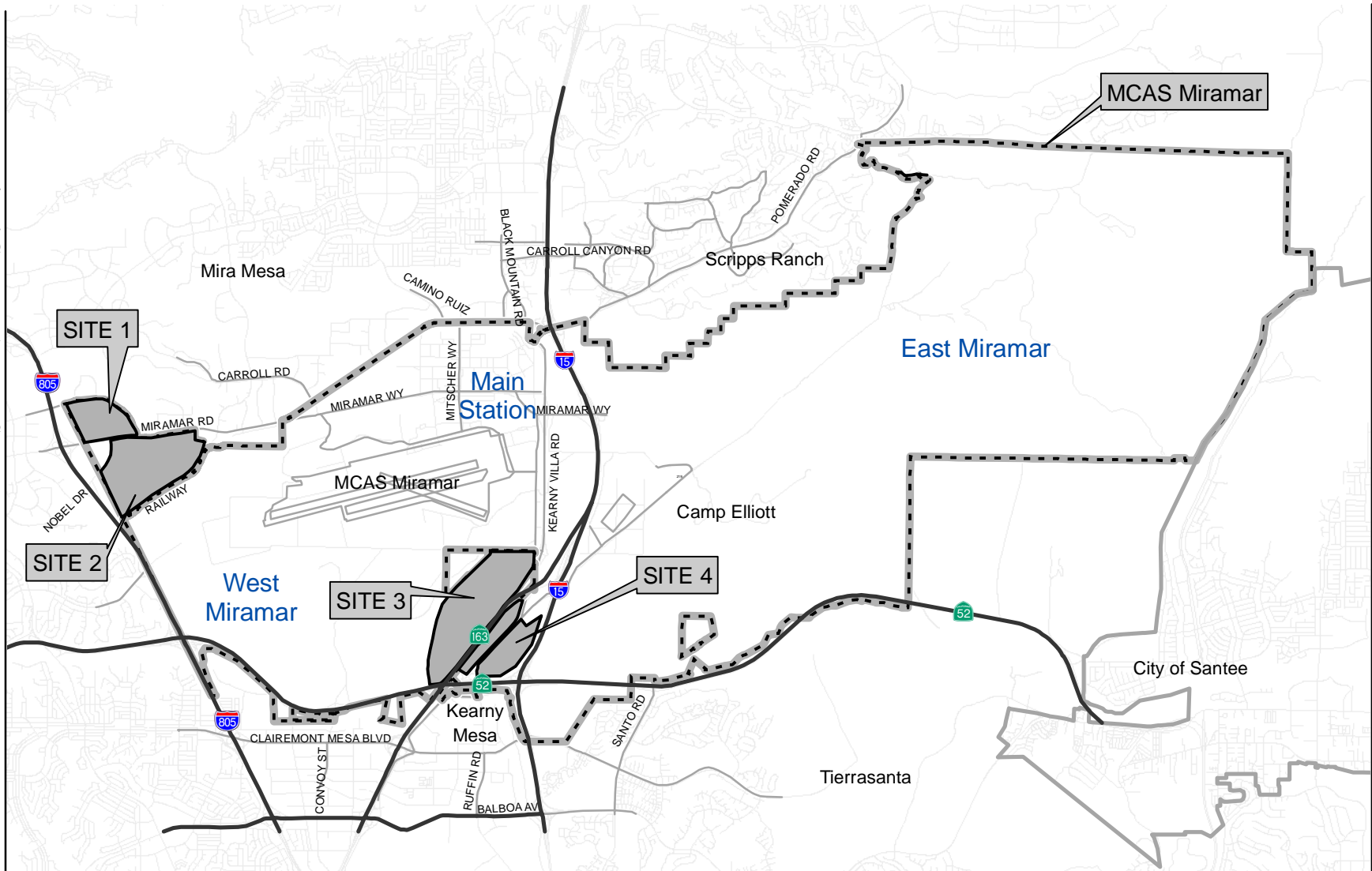
Fort Rosecrans National Cemetery is a 77-acre (31-hectare) site located in the center of the Point Loma peninsula in San Diego (Figure 1-1). Federal lands at Point Loma are owned by the U.S. Bureau of Land Management (BLM). The Navy is the primary occupant of the federal land on the Point Loma peninsula and manages these lands under a federal withdrawal from BLM. This federal withdrawal is a land transfer for military purposes. Fort Rosecrans National Cemetery is located within this federal land withdrawal held by the Navy. The National Cemetery Act of 1973 transferred responsibility for this land to the VA. In 2002, the Fort Rosecrans National Cemetery was expanded by 7 acres (3 hectares) to accommodate new columbarium niches to

provide increased cremation burial options to the San Diego veteran population. This expansion has also been transferred to the VA.

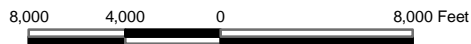
The Navy has three major tenant command complexes on Naval Base Point Loma that occupy most of the land on the southern half of the peninsula: Submarine Base, San Diego; Space and Naval Warfare Systems Center, San Diego; and Fleet Combat Training Center Pacific. The other major tenant command in the area is the Fleet Anti-Submarine Warfare Training Center, Pacific. The northern half of the Point Loma peninsula is occupied primarily by residential neighborhoods and parks and Point Loma Nazarene University.

MCAS Miramar is the primary Marine Corps Air Station for the west coast of the United States. It is located in the northeastern portion of San Diego (Figure 1-1). MCAS Miramar is located approximately 12 miles (19 kilometers) northeast of Fort Rosecrans National Cemetery, approximately 13 miles (30 kilometers) north of downtown San Diego, and approximately 4 miles (6.4 kilometers) east of the Pacific Ocean. State Route 52 (SR 52) and Interstate 805 (I-805) generally form MCAS Miramar's southern and western boundaries, respectively (Figure 1-2). MCAS Miramar is bisected by Interstate 15 (I-15), which runs in a north-south direction. Primary access to MCAS Miramar is from I-15 or Kearny Villa Road via the east gate (or main gate) on Miramar Way and from Miramar Road via the north gate on Mitscher Way. MCAS Miramar encompasses over 23,015 acres (9,314 hectares).

MCAS Miramar is divided into three primary geographical areas that include the Main Station, West Miramar, and East Miramar. The Main Station is located west of I-15, east of I-805, and south of Miramar Road. Most of MCAS Miramar-related facilities, including the airfield, aircraft maintenance, administration buildings, support services, and bachelor quarters and family residences are located in this area. West Miramar is the undeveloped areas bordering the Main Station on the south and west, respectively. This area includes land leased for the City of San Diego Miramar Sanitary Landfill and the Miramar Mounds National Natural Landmark, an area set aside for the conservation of nationally significant natural mima mound landscape and vernal pool resources. Additional parcels within West Miramar include the Hanson Aggregates, Harris Plant. West Miramar is primarily used as an air installation compatible use zone (AICUZ) buffer to mitigate high noise and aircraft accident potential. East Miramar, located east of I-15, contains a rifle and pistol range and is used for various training operations including physical training, survival training, orienteering skills, and infantry maneuvers. One highly visible landmark in East Miramar is Camp Elliott near the Kearny Villa Road/I-15 intersection (Figure 1-2). Camp Elliott includes warehousing, small arms and rifle ranges, and a San Diego County Sheriff's Department training facility.



Sources: SANDAG



Scale: 1:96,000; 1 inch = 8,000 feet

Figure 1-2
Cemetery Annex Site Boundaries
at MCAS Miramar

MCAS Miramar is located within the jurisdictional boundaries of the City of San Diego and is surrounded on the north, west, and south by the San Diego communities of Scripps Ranch, Mira Mesa, University City, Clairemont, Kearny Mesa, and Tierrasanta. The City of Poway lies to the northeast, beyond an area within San Diego. The City of Santee boundary is contiguous with the eastern border of MCAS Miramar, and two small pockets of land in the unincorporated area of San Diego County are located to the north and northeast of MCAS Miramar.

1.6 PUBLIC INVOLVEMENT PROCESS

The EIS process is designed to involve the public in federal decision-making. Comments from regulatory agencies and the public were solicited during the public scoping period to help identify the primary issues associated with implementation of the Proposed Action and to consider alternatives. Public and agency comments were solicited during the 45-day public review period on the Draft EIS. The public's input, as well as feedback from applicable resource and permitting agencies, was used to evaluate the alternatives and environmental impacts prior to a final decision.

1.6.1 Scoping Process

CEQ regulations implementing NEPA (40 CFR §1501.7) require an early and open process for determining the scope of issues that should be addressed in an EIS. The DON and VA initiated the scoping process on 12 October 2005 by publishing a Notice of Intent (NOI) to prepare an EIS in the Federal Register (Volume 64, Number 18), and by sending copies of the NOI to federal, state, and local agencies, and other parties known or expected to be concerned about the Proposed Action. The NOI is included in Appendix A.

A public scoping meeting was held on 2 November 2005 to inform the public about the Proposed Action and to solicit the public's participation and comments. The scoping meeting was held at the Holiday Inn Express in the San Diego community of Mira Mesa. Approximately 10 people attended the meeting and none of those provided public testimony.

Five written comment letters were received during the scoping period. Table 1-1 identifies the types of issues raised and their frequency and categorizes them into groups where the comment originated (i.e., agency, local organization, etc.). The issues raised in the comment letters included: an environmentally superior alternative should be considered and impacts to sensitive species should be fully addressed and minimized; the proposed cemetery annex should be consistent with the MCAS Miramar Integrated Natural Resources Management Plan (INRMP)

and the City of San Diego Multiple Species Conservation Program (MSCP); methods to prevent the introduction of non-native invasive plants, soil erosion, and siltation should be addressed in the EIS; reclaimed water should be used on the cemetery annex for non-potable purposes; and, the EIS should address the limited burial options to local veterans and the importance of ensuring federal funding for the action.

**Table 1-1
Summary Matrix and Frequency of Issues Raised during the Scoping Process***

Issue Areas	Federal Agencies	State Agencies	Local Agencies	Local Organizations	Individuals	Total
Scoping Process					2	2
Hydrology/Water Quality		2				2
Biological Resources	1					1
Alternative Site	1					1

* Note that some issues may be raised more than once by the same agency, organization, or individual during the scoping process.

1.6.2 Public Review of the Draft EIS

A Notice of Availability (NOA) for the Draft EIS was published in the Federal Register on 27 October 2006. A copy of the NOA is also included in Appendix A of this EIS. A notice that the Draft EIS was available for public review was also published in the San Diego Union Tribune. Known affected agencies, organizations, and persons who may have an interest in the cemetery annex project were provided with a copy of the Draft EIS. Copies were also provided to local library branches.

The mandated 45-day public review period began on 27 October 2006, and ended on 11 December 2006. One public meeting was held during the public review period on 16 November 2006. The public meeting was held at the Holiday Inn Select located in the San Diego Community of Mira Mesa. Approximately 10 people attended this meeting. The public was invited to give oral testimony to a certified court reporter at the public meetings or to provide written comments on the Draft EIS. A total of 2 people provided oral testimonies and 8 provided written comments during the comment period. All public comments, including written comments received during the Draft EIS public review period and oral testimony during the public meeting, are provided in Appendix G of this EIS along with a response to each comment. Table 1-2 identifies the types and frequency of issues raised and categorizes them in groups of where the comment originated.

Table 1-2
Summary Matrix of Issues Raised during the Public Draft EIS Process*

Issue Areas	Federal Agencies	State Agencies	Local Organizations	Individuals	Total
EIS Process				1	1
Biological Resources	2	1	1	2	6
Alternatives		1	1	1	3
Purpose and Need	1				1
Air Quality	1				1
Utilities	1				1

* Some issues may be raised more than once by the same agency, organization, or individual during the scoping process.

EIS = Environmental Impact Statement

As required under NEPA, there will be a 30-day public review period with publication by U.S. Environmental Protection Agency (USEPA) of an NOA in the Federal Register. During this period, the public may comment on the adequacy of the final document including responses to comments. A final decision by the Secretary of the Navy will be made upon the conclusion of this public review period.

CHAPTER 2.0 ALTERNATIVES

CEQ regulations require that an EIS contain a description of a proposed action as well as a description of the alternatives considered. Agencies are directed to use the NEPA process “to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the environment” (40 CFR 1500.2[e]). Alternatives found to be unreasonable do not need to be evaluated.

The Proposed Action assessed in this EIS is a land use agreement between the VA and the DON for the construction and operation of an annex to the existing Fort Rosecrans National Cemetery to serve veterans in the San Diego area. The DON and VA have considered a number of alternative sites for this cemetery annex. This chapter describes the alternatives development process (Section 2.1), alternatives eliminated from further review (Section 2.2), and a detailed description of the alternatives selected for further analysis in this EIS (Section 2.3). This chapter will also address a comparison of alternatives impacts and mitigation measures (Section 2.4) and the regulatory requirements and related coordination for implementation of one of the alternatives (Section 2.5).

2.1 ALTERNATIVES DEVELOPMENT PROCESS

The following section will discuss the project objectives of the proposed national cemetery annex (Section 2.1.1). In addition, the site selection process (Section 2.1.2) will be addressed.

2.1.1 Project Objectives

The objectives of the Proposed Action include:

- Provide additional casketed gravesites and cremated remains sites to serve the demands of the San Diego area veteran population for the next 20 to 30 years.
- Provide the additional veteran burial opportunities within 75 miles (120 kilometers) of the San Diego area veteran population.
- Provide a cemetery annex on federal land within 20 miles (32 kilometers) of Fort Rosecrans National Cemetery. The proposed annex would be managed by the same staff that manages

Fort Rosecrans National Cemetery. The distance the staff would need to travel between the cemetery and the annex must be minimized to less than 20 miles (32 kilometers) for operational efficiency.

- Minimize land acquisition costs through donations, property transfer, or land use agreements.
- Act with care in carrying out the NCA's mission of providing services for veterans and to ensure that the NCA does so in a manner that is consistent with national environmental policies. Specifically, the VA and the DON shall ensure that all practical means and measures are taken to protect, restore, and enhance the quality of the human environment.
- Avoid or minimize adverse environmental consequences, especially to sensitive biological resources, consistent with other national policy considerations.
- Preserve historical, cultural, and natural aspects of our national heritage.
- Avoid conflict or incompatibility with current and adjacent land uses.

2.1.2 Primary Site Selection Process

This section will discuss the site selection process for the proposed cemetery annex. The identification of potential sites will be addressed along with the results of the siting study evaluation.

Focal Point and Identification of Potential Sites

The first step in siting a new national cemetery or expanding an existing one is the definition of a focal point for the search. The focal point is determined primarily based on the distribution of the unserved veteran population and the location of available existing cemeteries. As discussed previously, the NCA has identified a need for additional burial space to serve the demands of the San Diego area veteran population for the next 20 to 30 years. The only national cemetery (Fort Rosecrans National Cemetery) in San Diego County has been closed to casketed burials since 1966, is scheduled to be closed to initial cremated remains burials by 2008, and has no additional land available for expansion. The only other national cemeteries close to San Diego are located approximately 130 miles (209 kilometers) away in Los Angeles and 90 miles (145 kilometers) away in Riverside.

The NCA prepared a Site Analysis in March 2002 and began its search for a potential cemetery annex site to serve the San Diego area military veterans. As stated earlier, the NCA would not site a new cemetery in the service area of an operating cemetery. A new facility in the service area of an operating national cemetery would be an annex to the existing operating cemetery. The annex must be located within 20 miles (32 kilometers) of the Fort Rosecrans National Cemetery for operational efficiency purposes. Large tracts (approximately 150 to 200 acres [61 to 81 hectares]) of undeveloped land were needed for siting evaluations. Large tracts of undeveloped private land meeting the NCA's criteria in the region and within close proximity to the Fort Rosecrans National Cemetery would cost between approximately \$150 and \$200 million, making acquisition of private lands cost prohibitive. In addition, no funds are available to the NCA for private land purchase for this project since it is an annex to an existing cemetery. Therefore, the NCA focused its land acquisition search on federal lands that could become available through donations, property transfer, or land use agreements.

In support of the NCA and the need to provide veteran burial space, the DON identified four potential cemetery sites on MCAS Miramar (Figure 1-2). MCAS Miramar is central to the San Diego region veteran population, is located within 15 miles (24 kilometers) of Fort Rosecrans National Cemetery, and has sufficient land to evaluate alternative sites, and a land use agreement could likely be entered into between the federal agencies. No other suitable areas are available in the San Diego region that meet these criteria. Marine Corps Base (MCB) Camp Pendleton is not central to the San Diego area and is not sufficiently close to Fort Rosecrans National Cemetery to operate as an annex to that facility. Other military installations within San Diego County do not have sufficient vacant land. The discussion of the other military installations is included in Section 2.2.1. No other federal agency has available large land holdings within 20 miles (32 kilometers) of Fort Rosecrans National Cemetery.

Siting Study Evaluation

The NCA evaluated the four MCAS Miramar sites as potential locations for the national cemetery annex in a March 2002 Site Analysis. These four sites were also evaluated in a Siting Study prepared by the DON and VA in January 2005. Based on discussions among staff from the NCA, MCAS Miramar, and Naval Facilities Engineering Command Southwest, a set of criteria was established to evaluate the viability of each of the four sites. These general evaluation criteria include (1) land use compatibility, (2) environmental sensitivity, and (3) site engineering constraints. The NCA has nine criteria used to assess potential sites. These include proximity, size, shape, accessibility, utilities and water, surrounding land use, soils, topography,

and restrictions to development. Each of the NCA criteria is addressed within one of the three general Siting Study criteria. The Siting Study criteria are discussed below.

Land Use Compatibility

This criterion addresses incompatible or nonconforming land uses on or adjacent to each of the sites. Included in this evaluation is the compatibility of the proposed cemetery annex with existing and planned land uses, including military operations and training. MCAS Miramar's AICUZ designations and airfield constraints were considered for each site. The potential for the cemetery site to contain unexploded ordnance and its proximity to Explosive Safety Quantity Distance (ESQD) arcs and Installation Restoration sites were also addressed.

Environmental Sensitivity

This criterion addresses the extent and significance of impacts to biological and cultural resources on each site and air quality and noise impacts. The biological resources evaluated included sensitive biological habitat, threatened and endangered species, vernal pools, wetlands, mitigation areas, and habitat management areas. If avoidance of these resources is not possible, reasonable mitigation will be developed. Additional discussion is included in Section 2.3.1 on how conceptual project designs were revised to avoid sensitive biological resources.

The evaluation of cultural resources addressed the significance of impacts to prehistoric and historic resources on each site. This evaluation included a discussion of the extent to which each site has been previously surveyed for cultural resources.

Analysis of air quality addressed emissions from both construction and operation of a cemetery. The noise analysis addressed the compatibility of a cemetery with existing noise levels from the air operations at MCAS Miramar and vehicle operation on adjacent roadways and freeways, and from the noise generated during construction and operation of a cemetery.

Site Engineering Constraints

This criterion addresses the required size and shape of the cemetery, access to the site, security, and physical constraints. Based upon the veteran population (253,000) of the greater San Diego area expected to be served by this national cemetery annex, it is anticipated that approximately 22 percent or 57,000 burials (31,000 casketed gravesites and 26,000 cremains sites) would be required in the next 20 years. The NCA projects that approximately 35 percent or 90,000 burials

(50,000 casketed gravesites and 40,000 cremains sites) would be required in the next 30 years. Based on 1,000 casketed gravesites per acre and 3,000 cremains sites per acre, a minimum of approximately 65 acres (26 hectares) of burial or interment space is needed by 2035. In addition to the interment sections, national cemeteries require additional (gross acreage) land for terrain, environmental constraints, infrastructure, landscaping, buffer zones separating sections, roadways, assembly area, memorial trail, and administrative spaces (Administrative Complex, Maintenance Complex, Committal Service Shelters, and public information building). The minimum gross acreage for the Fort Rosecrans National Cemetery Annex is approximately 150 to 200 acres (61 to 81 hectares); however, flexible design criteria may permit use of more or less acreage than specified.

The annex site should be located within 20 miles (32 kilometers) of Fort Rosecrans National Cemetery because the administrative, operational, and maintenance staff that supports Fort Rosecrans National Cemetery would also support the annex. The inefficiency of having one staff support two facilities located over 20 miles (32 kilometers) apart is considered unacceptable. The site would require normal daytime access for the public using a primary paved public road or highway. Additionally, a secondary entrance would be needed for delivery vehicles and heavy trucks bringing headstones and supplies. Access must be provided directly from a public road and not through MCAS Miramar, due to physical security requirements associated with military operations at MCAS Miramar.

The site should avoid conflicts with existing utility lines or significant physical constraints. Geologic hazards and soils with severe development constraints should be avoided if possible. To the extent feasible, the site should contain relatively level areas and avoid massive cut and fill grading associated with development.

The ideal site would meet all or most of the above general criteria and would be available for development; i.e., it would support and be compatible with surrounding military operations and training requirements.

2.2 ALTERNATIVES ELIMINATED FROM FURTHER REVIEW

This section addresses alternatives that were considered but eliminated from further review in the EIS. The discussion includes alternatives considered on other federal property in the San Diego region and on MCAS Miramar. The reasons for the elimination of these alternatives are provided.

2.2.1 Consideration of Military-owned Property in the San Diego Area

The majority of the land on military bases in the region is built out and/or used for military training operations and is unavailable for a new cemetery annex. Several military alternatives were considered: the Marine Corps Recruit Depot (MCRD), Naval Station Complex, and the Coronado Complex. As discussed earlier, MCB Camp Pendleton was not considered because it is located in northern San Diego County and is not central to the San Diego area and is not sufficiently close to Fort Rosecrans National Cemetery to operate as an annex to that facility. MCB Camp Pendleton is located 40 miles (64 kilometers) from Fort Rosecrans National Cemetery. Therefore, MCB Camp Pendleton is not carried forward for consideration as a location for a new cemetery annex in this EIS.

Marine Corps Recruit Depot

MCRD consists of 434 acres (176 hectares), with no undeveloped parcel of land suitable, or of sufficient size, for the development of a cemetery annex. All sites on MCRD are currently used to support MCRD's military training mission or have been designated for additional planned facilities to support this training mission. Therefore, MCRD is not carried forward for consideration as a location for a new cemetery annex in this EIS.

Naval Station Complex

The Naval Station Complex, more than 1,100 acres (445 hectares) in size, includes Naval Station San Diego, Fleet Industrial Supply Center, Naval Medical Center, and Public Works Center. The Naval Station Complex has no available land for a new cemetery annex because of requirements for existing land to support military operations. Existing master plans for the Naval Station Complex were evaluated and the properties were informally surveyed to identify potential land for cemetery sites. This research reaffirmed that these lands are used to support the Naval Station Complex military training mission or have been designated for additional planned facilities to support this training mission. Therefore, the Naval Station Complex is not carried forward for consideration as a location for a new cemetery annex in this EIS.

Coronado Complex

The Coronado Complex is one of the largest complexes at more than 44,800 acres (18,130 hectares), of which approximately 36,200 acres (14,650 hectares) are associated with Naval Auxiliary Landing Field San Clemente. The remaining components are Naval Air Station North

Island, Naval Amphibious Base Coronado, Naval Outlying Landing Field Imperial Beach, and the Silver Strand Training Complex. San Clemente Island would not be an appropriate location for a new cemetery due to its distance from the mainland (approximately 75 miles [120 kilometers] offshore) and the fact that almost the entire island contains significant environmental or military training restrictions. Other locations within the Coronado Complex have little or no developable land due to environmental constraints and requirements for existing land to support military operations. Existing master plans for the Coronado Complex were reevaluated, and the properties were informally surveyed to identify potential land for cemetery sites. This research confirmed that these lands are used to support the Coronado Complex military training mission or have been designated for additional planned facilities to support this training mission. Therefore, the Coronado Complex is not carried forward for consideration as a location for a new cemetery annex in this EIS.

No other military lands were identified as suitable for a new cemetery annex.

2.2.2 Consideration of Other Federal Property

No other federal lands in the area of central San Diego and within 20 miles (32 kilometers) of Fort Rosecrans National Cemetery were identified that would have sufficient land available for a national cemetery annex. Further, no other federal lands of any size were offered to the VA.

2.2.3 MCAS Miramar Alternatives

Based on the NCA requirements and the Siting Study criteria, two of the four sites evaluated in the Siting Study are carried forward in this EIS and are discussed further in Section 2.3. The two sites eliminated from further analysis are Sites 1 and 3 (Figure 1-2) and they are described below.

Site 1 Alternative

Site 1 is a 128-acre (52-hectare) site located in the northwest corner of MCAS Miramar. This site is bounded by Eastgate Mall on the north and east, Miramar Road on the south, and the western boundary of MCAS Miramar and the City of San Diego waste water treatment facility on the west. Site access is available from Miramar Road to the south and Eastgate Mall to the north and east. A powerline and a pipeline easement cross the site. The site is relatively flat with a small drainage generally trending east to west.

Site 1 has a number of biological resource constraints as reflected in its management level status designations. MCAS Miramar has developed management areas primarily to support conservation and management of special status species, wetlands, and other areas warranting special attention. Although MCAS Miramar's overall strategy is to avoid development and limit activities in areas supporting high densities of endangered species and wetlands, this may not always be possible. The management areas were partially delineated based upon the results of a Habitat Evaluation Model, which identified and ranked significant biological resources. Vernal pools (and the sensitive species within them) have the highest ranking (Level I Management Area); populations of non-vernal pool threatened and endangered species, including the coastal California gnatcatcher (*Polioptila californica californica*; CAGN), least Bell's vireo (*Vireo belli pusillus*), willowy monardella (*Monardella linoidea* ssp. *viminea*), and Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) received the second-highest ranking (Level II Management Area); and habitat linkages and riparian vegetation are ranked third highest (Level III Management Area). The remaining undeveloped areas on MCAS Miramar are Level IV Management Areas, while developed areas are Level V Management Areas.

Approximately 96 percent of Site 1 is Level I Management Area – vernal pools and associated watersheds. The remaining 4 percent is Level V Management Area – developed areas. There are estimated to be 70 vernal pools with a basin area of 2.8 acres (1.1 hectares) and an estimated watershed of 38.2 acres (15.5 hectares). Site 1 includes 55.6 acres (22.5 hectares) of previously dedicated mitigation area. At least 14 CAGN locations have been identified in the northwest portion of the site.

The site is 128 acres (52 hectares), which is considered too small for national cemetery development. A site this size would not adequately serve the burial needs of the veteran population of the greater San Diego area.

In summary, Site 1 has severe biological constraints and does not meet the minimum parcel size for a national cemetery annex. Since Site 1 does not meet the project objectives, this alternative site was eliminated from further study.

Site 3 Alternative

Site 3, approximately 403 acres (163 hectares), is located in West Miramar. The site is bounded by State Route (SR 163) to the east; the Hanson Aggregates, Harris Plant and access road to the north and west; and SR 52 to the south. Site access would be available from Kearny Villa Road to the northeast and the Hanson Aggregate, Harris Plant access road to the north.

Site 3 has the most land that would have no biological resources (approximately 35 acres [14 hectares] on the Hanson Aggregates, Harris Plant property). The remainder (368 acres [150 hectares]) of Site 3 is severely constrained due to the high proportion of the site that is designated as a Level I, II, or III Management Area and the presence of three federally listed species. Approximately 143 acres (58 hectares) of this site encompass the Miramar Mounds National Natural Landmark. It was designated as a natural landmark overlay by the National Park Service in 1972 but remains Marine Corps property. National natural landmarks are designated by the Secretary of the Interior to recognize and encourage the conservation of outstanding examples of our country's natural history. This area on MCAS Miramar has been so designated in recognition and appreciation of the nationally significant natural mima mound landscape and vernal pool resources on the site. The area has one of the largest and most extensive formations of sensitive vernal pools with federally protected species. A national cemetery would be considered an incompatible land use within a national natural landmark.

There are approximately 14 acres (5.7 hectares) of potential ACOE jurisdictional wetlands and 6,567 linear feet (2,001 linear meters) of potential ACOE jurisdictional waters of the United States on the site.

A willowy monardella population of six individuals occurs along San Clemente Canyon near the western boundary of this site. There are at least eight historical locations of CAGN in the northern portion of the site, although supporting habitat burned in an October 2003 wildfire and the area has not yet revegetated sufficiently to support nesting pairs.

As with Site 1, Site 3 has severe biological constraints, and a national cemetery is not a compatible land use within a national natural landmark. Site 3 does not meet the project objectives and has been eliminated from further study.

Other Areas of MCAS Miramar

In addition to the four MCAS Miramar sites that were identified as potential cemetery annex sites and evaluated in a Siting Study, other general areas within MCAS Miramar were initially considered. These include the Main Station, West Miramar, and East Miramar. The four sites evaluated in the Siting Study were the only large tracts of undeveloped land located on the Main Station and West Miramar that were potentially available for use as a cemetery annex.

The remainder of the Main Station and West Miramar is developed and/or dedicated to other land uses. The Main Station is the primary developed area of MCAS Miramar and is composed of five distinctive districts: the Flightline District; Operations and Training District; Community Support District; Bachelor Quarters District; and Family Housing District. The Main Station contains facilities that support the five districts and is developed with the exception of portions of Rose Canyon. The undeveloped portions of Rose Canyon are narrow in shape and contain sensitive natural resources.

West Miramar is largely composed of land leased for the City of San Diego Miramar Sanitary Landfill and the Miramar Mounds National Natural Landmark. Hanson Aggregates, Harris Plant also owns a parcel of land used for the production of asphalt products in this area. Due to ongoing uses or sensitive resources, none of these areas could be developed as a cemetery.

East Miramar includes warehouses; small arms and rifle ranges; a Nuclear, Biological, and Chemical training area and facility; ground training ranges; ordnance operations (includes ordnance disposal) areas; and natural conservation areas. This area is primarily used for training maneuvers and ordnance operations. A cemetery annex would require closing a portion of these ranges for a land use that would not be compatible with the surrounding uses.

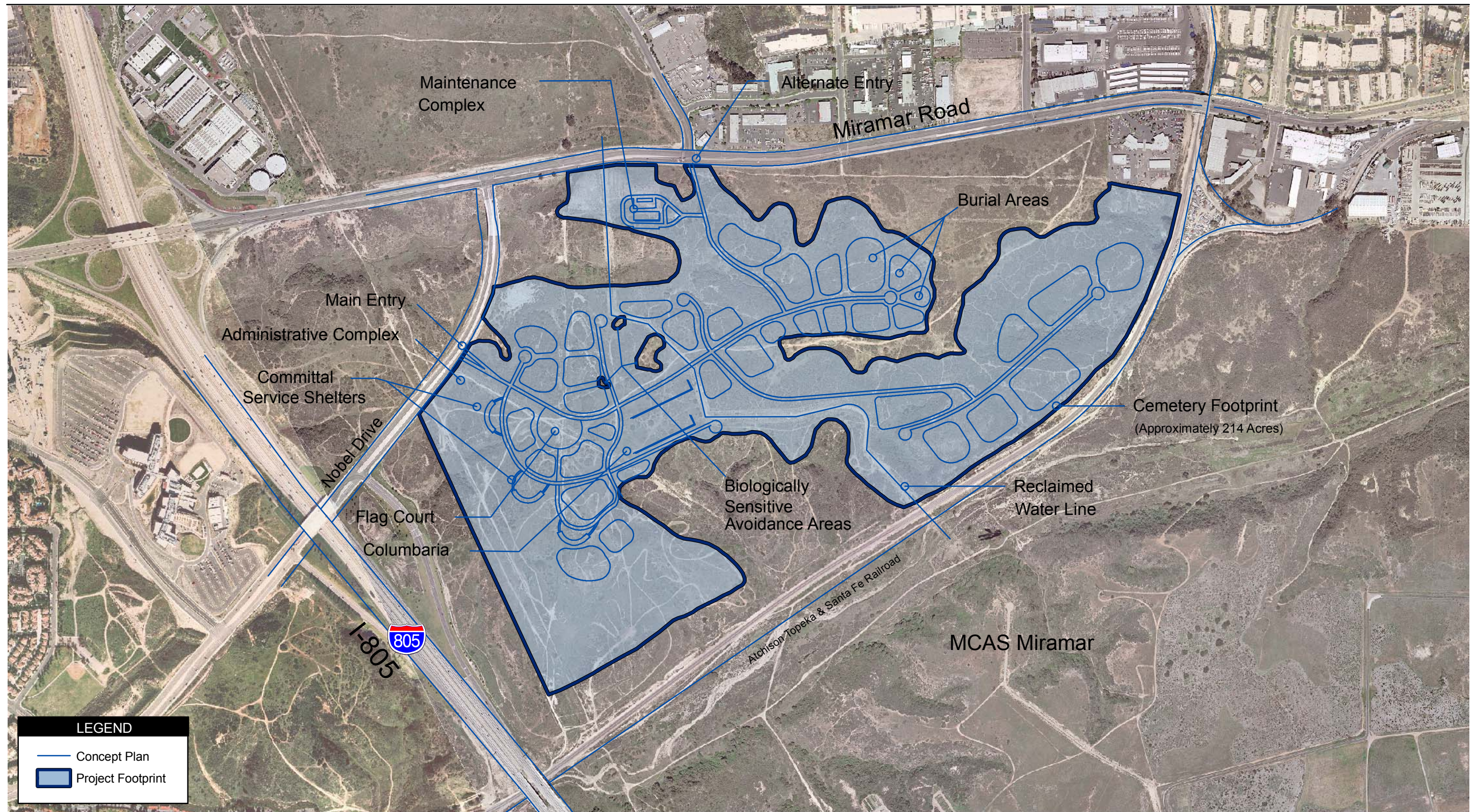
Therefore, based on existing and planned development, ongoing training operations, and designated sensitive environmental resource areas on MCAS Miramar, no other large tracts of land were considered available for study as potential sites for a new national cemetery annex.

2.3 DETAILED DESCRIPTION OF SITE ALTERNATIVES

This EIS evaluates three alternatives in detail, which include two sites at MCAS Miramar and the No Action Alternative. All three alternatives are described below.

2.3.1 Site 2 Alternative (Preferred Alternative)

Site 2 is located in the northwest portion of MCAS Miramar, south of Miramar Road and to the southeast of Site 1 (Figure 2-1). This site is approximately 323 acres (131 hectares) and has access to Miramar Road to the north and to Nobel Drive to the northwest. The site is bounded by Miramar Road to the north, the commuter railway to the south and east, and Nobel Drive to the west. A powerline and two pipelines cross the site. The topographic suitability of this site is varied on the site perimeter with a fairly level central area.



Source: MCAS Miramar 2005; Eagle Aerial 2004

700 350 0 700 Feet

Scale: 1:8,400; 1 inch = 700 feet

Figure 2-1
Site 2 Alternative Project Footprint
and Concept Plan

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Because the reasonableness of a potential site is in part a function of how well it can accommodate the programmatic requirements of the proposed cemetery annex, a general description of these requirements is provided. This description is largely based on general design criteria for VA cemeteries; actual design will take place after the NEPA process has been completed.

This section will discuss the required size of a new cemetery, the standard program elements and design principles, and the development and operations of a new cemetery annex.

Size

The optimum size of a VA cemetery is a function of the population to be served and general demographic trends. Initially the Site 2 development footprint matched the Site 2 boundary, which is approximately 323 acres (131 hectares) in size. Coordination between the NCA, MCAS Miramar, and the USFWS resulted in several redesigns of the development footprint to reduce potential impacts to sensitive biological resources including vernal pool basins and their associated watershed. The redesigns ultimately reduced the development footprint to the currently proposed 214-acre (87-hectare) site – a reduction of 109 acres (44 hectares). While master planning and design of the new cemetery annex will take place after a site has been selected, the location of the facilities and burial sites to be developed will stay within the project footprint identified in this Final EIS. The NCA has determined that Phase 1 of the Fort Rosecrans National Cemetery Annex, would be designed to accommodate 12,500 full casket gravesites, and approximately 10,000 columbarium niches for cremated remains within the first phase. A majority of the graves (11,000) would be in concrete grave liners. Concrete grave liners are preplaced concrete containers with removable concrete lids that would be installed all at once by excavating the burial area at the time of land development. The total Site 2 Alternative development, which would occur on approximately 214 acres (87 hectares), would provide 50,000 casketed gravesites and 40,000 columbarium niches for a 30-year planning period. This alternative would meet the upper end of the 20- to 30-year burial demand discussed in the objectives and the purpose and need in Chapter 1.

A goal of the NCA is to consider veteran desires with respect to casket or cremation burials. The ratio of casketed burials vs. cremains is based on historic demand trends by veterans and their families. Historic data indicated that approximately 70 percent of the burials were casketed and 30 percent were cremains (either in-ground or columbaria cremains). Recent trends show a shift to 60 percent casketed burials and 40 percent cremains. The percentages proposed for both proposed alternative sites in this EIS are approximately 55 percent casketed burials and

45 percent cremains. This is proposed to meet the future trend in burial requests by veterans and to also minimize the area of potential environmental impact. The percentage of casketed burials vs. cremated remains burials used for the Proposed Action is based on recent trends both in southern California and nationwide.

Based on these requirements, and the need for the site of the proposed new cemetery annex to accommodate the usual supporting facilities (described below), the NCA determined that any potential site should be approximately 150 to 200 acres (61 to 81 hectares) in total area if it was to be considered a reasonable siting alternative. This is because, given the nature of the sensitive environmental resources on MCAS Miramar, any smaller site would likely offer too little developable land (defined as land that can be developed without significant mitigation requirements) and/or require extensive mitigation to be developed. For instance, developable land would exclude, to the maximum extent practicable, wetlands and sensitive habitat.

Standard Program Elements and Design Principles

As noted in Section 1.4, master planning for and design of a new cemetery annex will take place only after a site has been selected, and each cemetery annex site would be, to a large extent, tailored to fit its location. Therefore, a detailed description of the proposed annex is not possible until a site has been selected and a master plan has been developed. However, a conceptual site plan has been prepared for this development alternative (Figure 2-1) and the final design is not expected to deviate substantially from the conceptual plan. If the final design is substantially different from the conceptual plan, supplemental NEPA analysis will be required. In addition, since all VA cemeteries serve the same function, they share common features and elements that must be accommodated by any selected site. The following paragraphs provide general descriptions of those common elements. Some assumptions about the size of facilities can be made at this stage and are presented below; however, the manner in which each element would specifically be accommodated or addressed at the proposed cemetery annex would be determined at the master planning and design stage.

Grading, Drainage, Fencing, and Plantings – The objective of the NCA would be to retain the site in as natural a state as possible. Grading may be necessary but would be kept to a minimum. In general, grades would range from a minimum of 2 percent to no more than 15 percent. On areas with a high water table, fill may be necessary to create a sufficient depth of soil so burials could be made above the water table. To the extent feasible, soil from on-site cuts would be used for on-site fill. Natural features, such as sensitive habitat, streams, or wetlands, preferably would be left untouched and incorporated into the landscaping. Fencing is proposed to restrict access to

portions of the Site 2 Alternative parcel and additional fencing is proposed to protect several specifically designated biologically sensitive avoidance areas (Figure 2-1). The Site 2 Alternative parcel would be fenced with a 5-foot (1.5-meter) tall ornamental fence along Miramar Road and Nobel Drive. The remainder of the parcel would remain unfenced since it is interior to the rest of MCAS Miramar. The fence would be open in appearance and slightly elevated above the ground. The biologically sensitive avoidance areas within Site 2 would not be developed and would be preserved and protected. These areas would be protected with smaller and more open ornamental fencing designed to keep visitors from entering or passing through these sensitive areas. The proposed fencing would not preclude wildlife movement through the site. Plantings, consisting of native species, would be used to accent the site layout. Ensuring proper drainage would be essential, and storm water management facilities may also serve as landscape features.

Entrance – The main entrance area would be designed to create a sense of arrival at a special place; it would incorporate architectural and landscape elements that convey the significance and dignity of the site without overpowering the visitor. It also would include gates or other devices to restrict and control vehicular access. This entrance would be for funeral corteges and visitors only. A service entrance, sufficiently removed from the main entrance, would be provided for utilitarian access (employees, maintenance, construction, delivery).

Flag Assembly Area – The U.S. flag would be the main symbolic focus of the cemetery, and the flag has special significance to veterans and their families. Therefore, the cemetery annex would have a stand-alone flag area, designed and landscaped to maximize the attractiveness and dignity of the place. The area would include a flagpole, a turf assembly area for ceremonies and small gatherings, and a focal point that could be used by speakers. The height of the flag pole would avoid interference with the Terminal Instrument Procedures (TERPS) airspace surfaces. A TERPS analysis would be conducted by NCA and coordinated with MCAS Miramar Air Operations during project design to avoid impacts to military operations and established flight patterns.

Roadway System – The cemetery annex would be served by a hierarchy of roads organized around the entrance road leading into a network of primary roads, secondary roads, and service drives that would serve the various sections of the facility (Figure 2-1). The entrance road, which would connect to Nobel Drive, would be divided, each side supporting one-way traffic, with a passing lane. The primary road, which would provide access to all other interior roads, would be a loop road allowing access through the cemetery without turning around. The secondary roads would provide access to the burial sections and could be subordinate loops or

connector roads. Other roads would include the service entrance road connecting to Miramar Road, service drives to buildings and other structures, and Committal Service Shelter drives. The Miramar Road service entrance would be closed and would restrict vehicles entering/exiting the site during the weekday peak hours (4 p.m. to 6 p.m.)

The design speed for the roads would be 15 miles per hour (24 kilometers per hour). Maximum grade would be 10 percent. The preferred road design would include curbing and street widths sufficient for two-way traffic to pass a parked vehicle. Parking needs would be accommodated in different ways. In general, visitors would park along roads or in parallel pull-offs. Buildings would have parking areas, as needed. The cemetery annex would also include a cortege assembly area, near the Public Information Center (discussed below) or the entrance road. The cortege assembly area would consist of lanes for vehicles to line up prior to proceeding to a Committal Service Shelter.

Public Information Center – The Public Information Center would be a visitor orientation facility that would be located near the main entrance and the cortege assembly area. It would be a combination building/covered plaza and would include a small visitor parking area separate from the cortege assembly area. The Public Information Center would be approximately 870 gross square feet (81 gross square meters) and would include public restrooms and an electronic gravesite locator for visitors.

Administrative Complex and Maintenance Complex – The Administrative Complex would include offices and overall cemetery administration uses. The Maintenance Complex would include workspaces for cemetery staff, a maintenance yard of sufficient size to accommodate the unloading of a tractor-trailer truck. The Maintenance Complex would preferably be sited so this facility would not be readily visible to visitors. Employee and other nonvisitor parking would be hidden from sight as much as possible, and the two complexes would have separate vehicular access via the service entrance from Miramar Road. The Administrative Complex would be located adjacent to the Nobel Drive entrance. At this time, it is expected that these two complexes would require approximately 13,700 square feet (1,273 square meters) of land, including storage areas and parking.

Committal Service Shelters – Normal operations at national cemeteries would provide for away-from-gravesite interment services. These services would be held in visually isolated sheltered areas. The shelters would be covered structures that would be open or partially enclosed on the sides and would provide limited protection from wind, rain, and sun. Each shelter would accommodate one service at a time and would be large enough to receive about 60 attendees. It

is expected that the Fort Rosecrans National Cemetery Annex would have two Committal Service Shelters, each approximately 600 square feet (56 square meters) in size.

Burial Sections – Burial sections would be areas devoted to full-casketed in-ground interments. The cemetery would include several such areas; each would be visually separated by vegetated areas, roads, and/or topography. In general, a burial section would not exceed 3 acres (1.2 hectares) (Figure 2-1). As much as possible, burial sections would follow topographical features. Each gravesite would have one marker, consistent with applicable legal requirements. Standard gravesite sizes would be 3 by 8 feet (0.9 by 2.4 meters) for preplaced burial vaults, 5 by 10 feet (1.5 by 3 meters) for double-depth interments in a 7-foot (2.1-meter) excavation; and 6 by 10 feet (1.8 by 3 meters) for single depth, side-by-side interment when soil conditions make excavation below 5 feet (1.5 meters) impractical.

Cremains Sites – Cremated remains would be accommodated either in designated cremains sections, garden niche or terrace sections (in-ground burial); in a columbarium (niche in an aboveground structure); or in a cremains scattering garden.

Other Common Elements and Features – These may include memorial sites and sections, preferably in areas not suitable for burials; an area for the display of memorials donated by various veterans groups, which may take the form of a walk or terrace; a site for a potential memorial to all veterans; an avenue of flags to display donated burial flags; and a site for a donated carillon tower. A carillon tower is an architectural structure no more than 40 feet (12 meters) in height that may or may not be included as part of the cemetery annex. The tower would not be part of the VA construction and would comply with MCAS Miramar height restrictions. The carillon tower would avoid interference with military operations and established flight patterns, and similar to the flag pole, will require coordination with MCAS Miramar Air Operations and preparation of a TERPS analysis. The cemetery annex would include signage, benches, recycling and trash receptacles, and flower containers. The Proposed Action would comply with Executive Order (E.O.) 13123, Greening the Government Through Efficient Energy Management signed into effect 8 June 1999 (Federal Register Volume 64 No. 109). This would include the use of reclaimed water and renewable energy, and incorporation of sustainable designs and a reduction of greenhouse gases.

Off-Site Improvements – Off-site improvements would be required for utility connections. A new water distribution system would be constructed to serve the Site 2 Alternative. The water distribution system would be designed according to City standards and to meet fire flow requirements. The proposed water distribution system for this alternative would consist of a

network of pipes that would follow the proposed roads to create a looped system. The proposed off-site connection point would be the major water pipeline that crosses just north of Site 2 or from an existing water line in Miramar Road. Booster pumps and/or reservoirs would be required for fire storage requirements and for adequate pressure at the higher elevations of Site 2.

In addition, the proposed cemetery annex would maximize use of reclaimed water for irrigation and other non-potable purposes such as for construction and restroom facilities in compliance with E.O. 13123. A reclaimed water line from the North City Water Reclamation Facility crosses Site 2 (Figure 2-1) and would be accessed for use. The City of San Diego Water Department recommended the cemetery annex use reclaimed water for non-potable purposes in a scoping letter dated 3 November 2005 (Appendix A).

A new on-site sanitary sewer system would be designed to City standards with a granted easement to the City of San Diego. The sewer lines for this alternative would run under the proposed streets, with pump stations necessary for localized low points. The proposed sewer connection point would be from an existing sewer line in Miramar Road.

The demand for natural gas and electricity at Site 2 would be accommodated by existing services provided by San Diego Gas and Electric (SDG&E) and by the new electrical and gas distribution systems that would be installed as part of the proposed cemetery annex. The proposed connection point for natural gas would be the main located adjacent the site to the west along I-805. The proposed connection point for electricity would be the overhead 230-kilovolt (kV) line that crosses Site 2 from north to south. The NCA would also explore the use of renewable energy such as solar energy where feasible.

Development and Operations

The functions of the cemetery annex would include the operation and maintenance of all aspects of the cemetery. This would include burial of veterans and eligible family members; the interment of cremated remains; the placement and maintenance of a headstone or grave marker; and the conduct of Memorial Day, Veterans Day, and other special ceremonies. The users would typically include:

- Funeral attendees, including family members, funeral directors, etc.;
- Public visitors;
- Cemetery staff, including administrative, maintenance, and other visiting VA staff;

- Volunteers, who provide honors at interment services and assist cemetery staff in administration and maintenance activities; and
- Contractors (maintenance and construction), sales representatives, and vendors.

Figure 2-1 illustrates the conceptual footprint of this alternative site at MCAS Miramar. Preliminary site planning has been performed for purposes of determining a grading footprint and to evaluate likely worst-case impacts for various issue areas. This conceptual planning will allow decision-makers to understand relative differences between the alternative sites. The project as constructed may have a slightly different configuration.

The Fort Rosecrans National Cemetery Annex would be developed in phases. During the first phase of development, the infrastructure required for the cemetery to function would be built, and selected areas of the site would be open to burials. The first phase would consist of the first 10-year burial development. The remainder of the site would be developed in future 10-year phased projects. When developed gravesites near depletion, another phase of the cemetery annex would be developed for burials. The Fort Rosecrans National Cemetery Annex is expected to reach full build-out by 2050. The first interments are expected to take place in 2008.

The cemetery annex would be open for burials 5 days a week, generally from 8:00 a.m. to 5:00 p.m. Burials would generally not be conducted on weekends and holidays. Generally, funeral corteges would be received from 9:00 a.m. to 3:00 p.m. Monday through Friday. Over its first 10 years of operation, the Fort Rosecrans National Cemetery Annex would be expected to accommodate an average of six burials per weekday.

Away-from-gravesite services, held in a Committal Service Shelter, would be scheduled in advance by the cemetery administrative staff. A Public Information Center with Cortège Assembly Area would be situated near the main cemetery entrance off Nobel Drive to provide a central point for vehicles in a funeral procession to wait while the entire cortège assembles and representatives receive final instructions before proceeding to the Committal Service Shelter. The Public Information Center may be staffed by cemetery personnel and/or volunteers.

USFWS issued a Biological Opinion (1-6-06-F-4652.3) on 6 April 2007 (Appendix F). USFWS concluded that this alternative is not likely to jeopardize the continued existence of the CAGN or the San Diego fairy shrimp (*Branchinecta sandiegonensis*, SDFS) with the implementation of the reasonable and prudent measures and with their implementing terms and conditions identified in the Biological Opinion. The reasonable and prudent measures and the terms and conditions of

the Biological Opinion (Appendix F) will be included as part of this alternative and are the responsibility of the NCA.

Summary

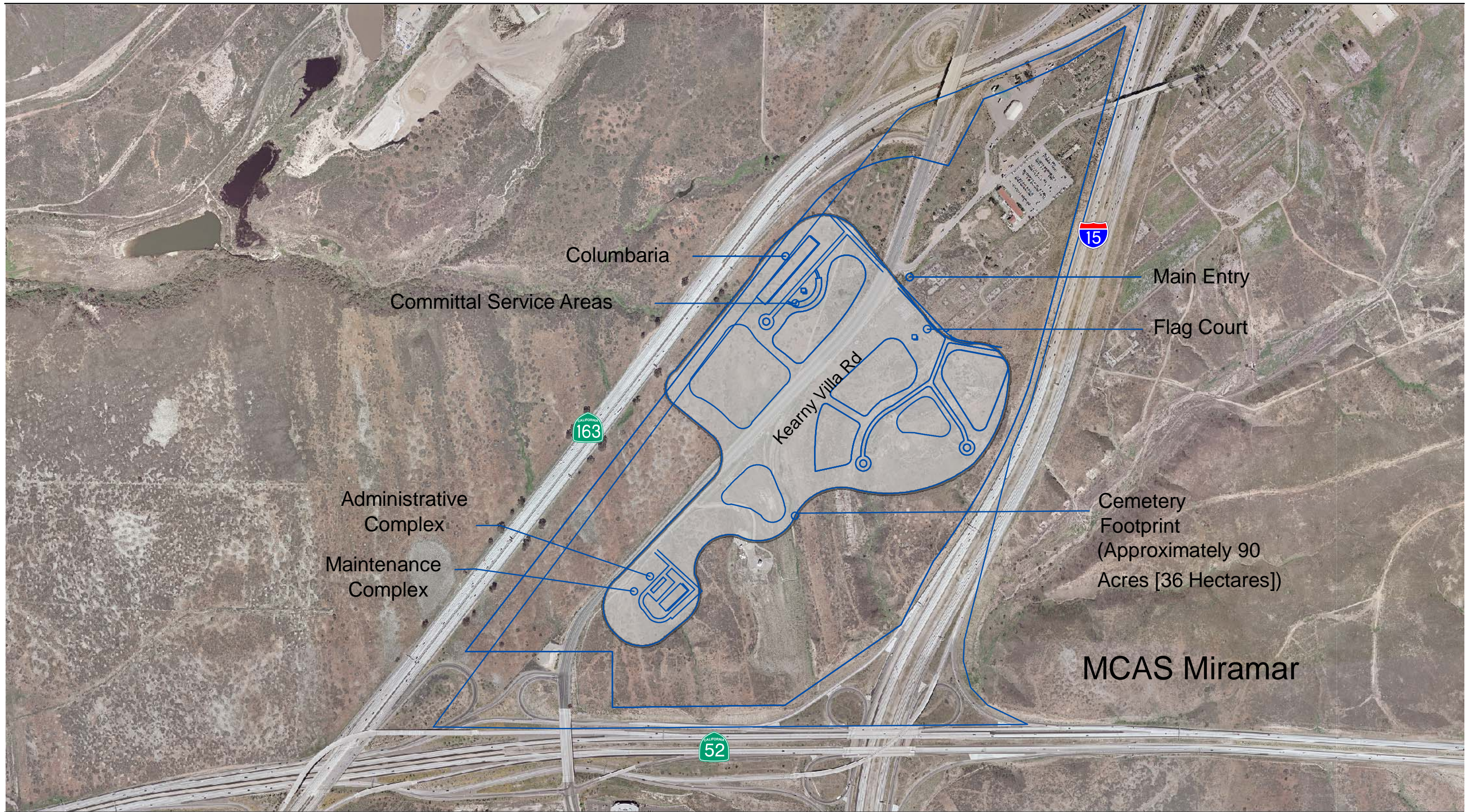
The Site 2 Alternative would provide the additional casketed gravesites and cremated remains sites to serve the demands of the San Diego area veteran population to 2035 and meet the mission of the NCA. This alternative would be located within 20 miles (32 kilometers) of Fort Rosecrans National Cemetery and would minimize land acquisitions costs via the land use agreement with the DON. Through coordination with the MCAS Miramar Environmental Management Division and the VA, the orientation and footprint of the cemetery annex have been configured to avoid and minimize adverse environmental consequences. This alternative would preserve the historical, cultural, and natural aspects of our national heritage and would not conflict with or be incompatible with current and adjacent land uses. Therefore, the Site 2 Alternative would meet the purpose and need.

2.3.2 Site 4 Alternative

Site 4, approximately 175 acres (71 hectares), is located in the south-central portion of MCAS Miramar (Figure 2-2). The site is east of Site 3 and is completely surrounded by freeways, with SR 163 to the west, SR 52 to the south, and I-15 to the east. Kearny Villa Road traverses the site in a north-south direction. Site access would be available from Kearny Villa Road to the west.

Size

Due to the limited size of Site 4, the maximum number of full-casketed gravesites would be 31,000, with approximately 26,000 columbarium niches for cremated remains, which would provide burial demands for the next 20 years. As discussed for the Site 2 Alternative, the percentages of burials would be 55 percent for casketed burials and 45 percent for cremains. This alternative would meet the lower end of the 20- to 30-year burial demand discussed in the objectives and the purpose and need in Chapter 1. Similar to the Site 2 Alternative, a majority of the graves would incorporate preplaced concrete grave liners.



Source: Eagle Aerial 2004
 700 350 0 700 Feet
 Scale: 1 : 8,400; 1 inch = 700 feet

Figure 2-2
Site 4 Alternative Project Footprint
and Concept Plan

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Standard Program Elements and Design Principles

As noted in Section 1.4, master planning for and design of a new cemetery annex would take place only after a site is selected, and each cemetery is, to a large extent, tailored to fit its location. Therefore, a detailed description of the proposed new cemetery annex is not possible until a site has been selected and a master plan has been developed for it. The concept plan for this alternative is shown in Figure 2-2. The final design is not expected to deviate substantially from the concept plan. If the final design is substantially different, supplemental NEPA analysis would be required. Overall, the construction and operation of this alternative would be similar to the Site 2 Alternative.

Grading, Drainage, Fencing, and Plantings – The objective of the NCA would be to retain the site in as natural a state as possible. Grading may be necessary but would be kept to a minimum. In general, grades would range from a minimum of 2 percent to no more than 15 percent. On areas with a high water table, fill may be necessary to create a sufficient depth of soil so burials could be made above the water table. To the extent feasible, soil from on-site cuts would be used for on-site fill. Natural features, such as sensitive habitat, drainages, or wetlands, would preferably be left untouched and incorporated into the landscaping. Similar to the Site 2 Alternative, fencing is proposed to restrict access to the entire development footprint (or parcel). The entire Site 4 Alternative parcel would be fenced with a 5-foot (1.5-meter) tall ornamental fence. The fence would be open in appearance and slightly elevated above the ground. The proposed fencing would not preclude wildlife movement through the site. Plantings, consisting of native species, would be used to articulate the site layout. Ensuring proper drainage would be essential, and storm water management facilities could also serve as landscape features.

Flag Assembly Area – The U.S. flag would be the main symbolic focus of the cemetery, and the flag has special significance to veterans and their families. Therefore, the cemetery annex would have a stand-alone flag area, designed and landscaped to maximize the attractiveness and dignity of the place. The area would include a flagpole, a turf assembly area for ceremonies and small gatherings, and a focal point that could be used by speakers. A TERPS analysis would be required to ensure avoidance of airspace interference.

Entrance – The main entrance area, designed to create a sense of arrival at a special place, would be provided from Kearny Villa Road (Figure 2-2). This entrance would be for funeral corteges and visitors only. A service entrance, also provided from Kearny Villa Road, would be for utilitarian access (maintenance, construction, delivery).

Roadway System – The cemetery would be served by a road system organized around the entrance road leading into a network of primary roads, secondary roads, and service drives that would serve the various sections of the facility (Figure 2-2). The entrance road, which would connect to Kearny Villa Road, would be divided, each side supporting one-way traffic, with a passing lane. The primary road, which would provide access to all other interior roads, would be a loop road allowing access through the cemetery without turning around. The secondary roads would provide access to the burial sections and could be subordinate loops or connector roads. All other characteristics of the internal road system would be similar to the Site 2 Alternative.

Committal Service Areas – Normal operations at national cemeteries would provide for away-from-gravesite interment services. These services would be held in visually isolated sheltered areas. The shelters would be a covered fabric canopy or tent that would be open or partially enclosed on the sides and would provide limited protection from wind, rain, and sun. The canopy or tent would be temporarily erected and removed after use.

All other aspects of the cemetery, including the Public Information Center, Administrative Complex, Maintenance Complex, burial sections, cremains sites, and other common elements and features, would be similar to the Site 2 Alternative.

Off-Site Improvements – Off-site improvements would be required for traffic impacts and utility connections. Local roadway improvements would be included as part of the Site 4 Alternative to mitigate significant traffic impacts. For the near-term (Year 2010) conditions, the SR 52 westbound ramps/Kearny Villa Road intersection would be signalized. For the horizon year (Year 2030) scenario, a second southbound left-turn lane would be added to Kearny Villa Road at the SR 52 eastbound off-ramp/Kearny Villa Road intersection, a second southbound right-turn lane would be added to Kearny Villa Road at the SR 163 southbound ramps/Kearny Villa Road intersection, and the intersection would be signalized. All roadway improvements would be within the City and California Department of Transportation (Caltrans) rights-of-way.

As with the Site 2 Alternative, a new water distribution system would be constructed to serve the proposed annex at Site 4 and would be designed according to City standards and to meet fire flow requirements. An access easement on-site would be granted to the City. The proposed water distribution system connection point would be the existing water line in Kearny Villa Road.

A new on-site sanitary sewer system would be designed to City standards with a granted easement to the City. The sewer lines for this alternative would run under the proposed streets,

with pump stations necessary for localized low points. The proposed sewer connection point would be from an existing sewer line in Kearny Villa Road.

A new electrical and gas distribution system would be installed as part of the proposed development. The proposed connection point for natural gas would be the natural gas main that crosses the site from north to south. The proposed connection point for electricity would be the overhead 69-kV line that crosses from north to south to the east of Site 4.

Development and Operations

The development and operations of the Site 4 Alternative would be similar to the development and operations described for the Site 2 Alternative.

Summary

Although the Site 4 Alternative would provide substantially fewer casketed gravesites and cremated remains sites than would the Site 2 Alternative, this alternative would serve the demands of the San Diego area veteran population for the next 20 years and would meet the mission of the NCA. This alternative would also be located within 20 miles (32 kilometers) of Fort Rosecrans National Cemetery and would minimize land acquisitions costs via the land use agreement with the DON. The orientation and footprint of the cemetery annex have been configured to avoid and minimize adverse environmental consequences. This alternative would preserve the historical, cultural, and natural aspects of our national heritage and would not conflict with or be incompatible with current and adjacent land uses. Therefore, the Site 4 Alternative would meet the purpose and need.

2.3.3 No Action Alternative

Under this alternative, there would be no land use agreement between the DON and VA for the construction and operation of an annex to Fort Rosecrans National Cemetery to serve the 253,000 San Diego area veterans and their families. Since the only national cemetery (Fort Rosecrans National Cemetery) in San Diego County has been closed to casketed burials since 1966, is scheduled to be closed to cremated remains burials by 2008, and has no additional land available for expansion, needed burial space for military veterans in the San Diego area would not be provided. Veterans in the San Diego area who desire a burial option in a veterans' cemetery would need to utilize Riverside National Cemetery located in Riverside, California, approximately 90 miles (145 kilometers) to the north, which is considered too distant to

adequately service the veteran population in the San Diego metropolitan area. There are no state veterans' cemeteries in southern California. Given the distance to other national cemeteries and the existing federal legislation to provide burial opportunities for U.S. veterans and their immediate family dependents, the No Action Alternative would not meet the purpose and need and objectives for the Proposed Action or the mission of the NCA to serve veterans with burial facilities.

In the short term, the various alternative sites would remain in their current conditions but would be available for future military development. The two alternative cemetery sites evaluated in this EIS are currently undeveloped and are characterized by native vegetation and natural terrain. If a national cemetery is not developed on either of the two sites, the property would continue to be utilized under current conditions, which include Accident Potential Zone (APZ) protected areas of MCAS Miramar airfield operations. It is possible that some other land use could be implemented in the future. As part of any future development process, a separate environmental evaluation would be undertaken to determine the environmental impacts of that action. Although it is possible that the alternative sites may eventually be developed or reused, there is no current certainty regarding potential future use. Since it is impossible to determine the type of development/reuse that might result should the national cemetery annex not be constructed, the environmental impact analysis of the No Action Alternative in this EIS focuses on the near-term status condition only. This approach is consistent with NEPA guidelines, which do not require analysis of speculative future development.

2.4 COMPARISON OF ALTERNATIVES IMPACTS AND MITIGATION

Table 2-1 presents a summary of potentially significant environmental effects and corresponding mitigation measures for each alternative.

2.5 REGULATORY REQUIREMENTS AND RELATED COORDINATION

Approvals and regulatory coordination would be required for implementation of the Proposed Action. Table 2-2 lists the federal and state actions that may be required and identifies the agencies that may use the information presented in this EIS to make decisions regarding regulatory coordination or approvals or issuance of permits, if appropriate.

**Table 2-1
Summary of Potential Environmental Consequences and Mitigation Measures**

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
Land Use		
<p>Impact. No significant impacts would occur to existing or future land uses. Implementation of the Site 2 Alternative would be consistent with all adopted plans, policies, and ordinances.</p> <p>Mitigation. No mitigation measures are proposed.</p>	<p>Impact. No significant impacts would occur to existing or future land uses. The majority of the Site 4 Alternative is located within APZ I. Gatherings of more than 25 people per acre within APZ I is incompatible with the MCAS Miramar AICUZ.</p> <p>Mitigation. Restrict on-site gatherings to less than 25 people per acre or conduct gatherings outside APZ I at another MCAS Miramar or off-site location.</p>	<p>Impact. No land use-related impacts would occur.</p> <p>Mitigation. No mitigation measures are proposed.</p>
Socioeconomics/Environmental Justice		
<p>Impact. The Site 2 Alternative would not have any significant adverse socioeconomic impacts and would have incrementally positive socioeconomic impacts. No Environmental Justice or Environmental Health and Safety Risks to Children impacts are anticipated.</p> <p>Mitigation. No mitigation measures are proposed.</p>	<p>Impact. Socioeconomic impacts for the Site 4 Alternative would be similar to the Site 2 Alternative.</p> <p>Mitigation. No mitigation measures are proposed.</p>	<p>Impact. The No Action Alternative would continue the adverse social and economic impacts to local veterans' family members, traveling back and forth to Riverside National Cemetery.</p> <p>Mitigation. No mitigation measures are proposed.</p>
Utilities		
<p>Impact. No significant impacts were identified for water, sewer, natural gas, electricity, or solid waste.</p> <p>Mitigation. No mitigation measures are proposed.</p>	<p>Impact. No significant impacts were identified for water, sewer, natural gas, electricity, or solid waste.</p> <p>Mitigation. No mitigation measures are proposed.</p>	<p>Impact. No utilities-related impacts would occur.</p> <p>Mitigation. No mitigation measures are proposed.</p>

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
Public Services		
Impact. No significant impacts would occur to fire protection and police services.	Impact. No significant impacts would occur to fire protection and police services.	Impact. No public service-related impacts would occur.
Mitigation. No mitigation measures are proposed.	Mitigation. No mitigation measures are proposed.	Mitigation. No mitigation measures are proposed.
Visual Resources		
Impact. Temporary construction activities, including grading, access roads, and staging would be visible from passing motorists on adjacent roadways. At build-out the cemetery annex would have a passive appearance, which would blend with the surrounding area and natural terrain. Minimal lighting would be included. No impacts to visual resources would occur.	Impact. Temporary construction activities, including grading, access roads, and staging would be visible from passing motorists on adjacent roadways. At build-out the cemetery annex would have a passive appearance, which would blend with the surrounding area and natural terrain. Minimal lighting would be included. No impacts to visual resources would occur.	Impact. No visual-related impacts would occur.
Mitigation. No mitigation measures are proposed.	Mitigation. No mitigation measures are proposed.	Mitigation. No mitigation measures are proposed.
Cultural Resources		
Impact. Five archaeological sites are located within the Site 2 Alternative. Two of these sites have been previously evaluated and determined to not be eligible for the National Register of Historic Places (National Register). Assessment of the remaining three sites concluded that CA-SDI - 12,409, -12,438, and -12,439 do not meet the criteria of eligibility for the National Register. There would be no adverse effect. SHPO has concurred with these findings (Appendix E).	Impact. One archaeological site previously evaluated and determined to not be eligible for the National Register would be impacted by the Site 4 Alternative. There would be no adverse effect.	Impact. No cultural resources-related impacts would occur.
Mitigation. No mitigation measures are anticipated because the archaeological sites have been determined to not be eligible. If other resources not previously identified are found, evaluation of these resources will be needed.	Mitigation. No mitigation measures are anticipated because the archaeological site has been determined to not be eligible.	Mitigation. No mitigation measures are proposed.

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
Biological Resources		
<p>Impact. The proposed cemetery annex would impact approximately 213.60 acres (86.44 hectares) of undeveloped land, including 17.16 acres (6.94 hectares) of regionally rare plant communities. Approximately 12.97 acres (5.23 hectares) of largely disturbed habitat recently occupied by CAGN would also be impacted. Additionally, two vernal pools(0.010 acre [0.004 hectare]) and 27 man-made depressions (0.299 acre [0.121 hectare]) with SDFS and 4 vernal pools with no listed species (0.013 acre [0.005 hectare]) would be directly impacted. The USFWS issued a Biological Opinion (1-6-06-F-4652.3) on 6 April 2007 concluding that this alternative would not likely jeopardize the continued existence of CAGN or SDFS (Appendix F). Additionally, development of Site 2 would impact five ephemeral drainages totaling approximately 3,333 feet (1,015 meters) and 0.230 acre (0.093 hectare). A wetland jurisdictional determination and delineation and detailed development plan would be required to determine which type of Clean Water Act permit would be necessary. This wetland assessment will consist of a jurisdictional determination to evaluate whether water bodies within the site that may be affected by site development are under federal jurisdiction, and for those that are, a delineation to determine the extent of jurisdictional waters, including wetlands, within proposed permanent and temporary impact areas. A formal ACOE jurisdictional determination and delineation report for waters and wetlands will be required for submittal to the ACOE and USFWS to request their review and concurrence of the</p>	<p>Impact. The proposed cemetery annex would directly impact approximately 89.78 acres (36.33 hectares) of undeveloped land, including 12.57 acres (5.09 hectares) of regionally rare plant communities. Approximately 14.88 acres (6.03 hectares) of largely disturbed habitat recently occupied CAGN habitat would also be impacted. Additionally, 25 vernal pools (0.261 acre [0.106 hectare]) and 25 man-made depressions (0.324 acre [0.131 hectare]) with SDFS and/or SD mesa mint present, and 33 vernal pools (0.153 acre [0.062 hectare]) with no listed species will be directly impacted.</p>	<p>Impact. No biological resources-related impacts would occur.</p>

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
<p>determination and delineation results. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The potential linear and acreage impacts to these ephemeral drainages may be considered more than minimal. Based on this information and the project plans, it is anticipated that the project's impacts to federal waters and wetlands would require an Individual Permit under the Clean Water Act. In addition, the submittal of an application for 401 water quality certification to the Regional Water Quality Control Board would be necessary.</p>		
<p>Mitigation. Compensation would occur in compliance with the Integrated National Resources Management Plan (INRMP) and would include approximately 15.98 acres (6.46 hectares) of vegetation (coastal sage and chaparral), including 9.60 acres (3.88 hectares) for permanent direct impacts to recently occupied CAGN habitat. Compensation for permanent direct impacts to vernal pool species would include approximately 0.492 acre (0.199 hectare) of vernal pools and man-made depressions with SDFS, and 4 vernal pools with no listed species present. In addition, all reasonable and prudent measures and terms and conditions of the Final Biological Opinion (1-6-06-F-4652.3) will be incorporated into the Proposed Action.</p> <p>Impacts to jurisdictional waters would be anticipated. Review and approval by the ACOE for all jurisdiction impacts will be needed to determine the final Clean Water Act permitting requirements.</p>	<p>Mitigation. Compensation would occur in compliance with the INRMP and would include approximately 13.73 acres (5.56 hectares) of vegetation (coastal sage and chaparral), including 9.54 acres (3.87 hectares) for permanent direct impacts to recently occupied CAGN. Compensation for permanent direct impacts to vernal pool species would include approximately 1.4 acres (0.58 hectare) of vernal pools and man-made depressions with SDFS and/or SD mesa mint, and 33 vernal pools with no listed species present.</p>	<p>Mitigation. No mitigation measures are proposed.</p>

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
Soils and Geology		
<p>Impact. The Site 2 Alternative impacts to geology, soils, topography, or seismicity would be avoided through implementation of standard design and construction measures such as compliance with the seismic design criteria of the Uniform Building Code and obtaining a National Pollutant Discharge Elimination System (NPDES) permit. The general NPDES permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) emphasizing best management practices (BMPs).</p>	<p>Impact. The Site 4 Alternative impacts to geology, soils, topography, or seismicity would be avoided through implementation of standard design and construction measures such as compliance with the seismic design criteria of the Uniform Building Code and obtaining an NPDES permit. The general NPDES permit requires development and implementation of a SWPPP emphasizing BMPs.</p>	<p>Impact. No soils and geology-related impacts would occur.</p>
<p>Mitigation. No mitigation measures are proposed.</p>		
Water Resources		
<p>Impact. The amount of impervious surfaces would be increased along with the amount of runoff. Improvements to the drainage system would accommodate any increase in runoff. An NPDES construction activity storm water discharge permit would be required. A SWPPP would be prepared, including BMPs to reduce the potential for water quality degradation. Implementation of these water quality controls would eliminate both direct and indirect impacts to surface water resources. The proposed project would not require the withdrawal of groundwater from any local or regional aquifer. There would be no floodplain encroachment.</p>	<p>Impact. The amount of impervious surfaces would be increased along with the amount of runoff. Improvements to the drainage system would accommodate any increase in runoff. An NPDES construction activity storm water discharge permit would be required. A SWPPP would be prepared, including BMPs to reduce the potential for water quality degradation. Implementation of these water quality controls would eliminate both direct and indirect impacts to surface water resources. The proposed project would not require the withdrawal of groundwater from any local or regional aquifer. There would be no floodplain encroachment.</p>	<p>Impact. No water resources-related impacts would occur.</p>
<p>Mitigation. No mitigation measures are proposed.</p>		

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
Public Health and Safety		
<p>Impact. No significant impacts were identified for public health and safety.</p> <p>Mitigation. No mitigation measures are proposed.</p>	<p>Impact. No significant impacts would occur with respect to munitions and explosives of concern; electromagnetic radiation; small arms ranges; or hazardous wastes, substances, and materials. Impacts associated with public gatherings of more than 25 people per acre in APZ I would be significant.</p> <p>Mitigation. Restricting on-site gatherings to less than 25 people per acre or conduct gatherings at another MCAS Miramar or off-site location outside of APZ I.</p>	<p>Impact. Impacts to public health and safety would not occur.</p> <p>Mitigation. No mitigation measures are proposed.</p>
Traffic/Circulation		
<p>Impacts. The Site 2 Alternative would not result in any significant traffic impacts under any of the development scenarios.</p>	<p>Impacts.</p> <p><u>Near-term (Year 2010) scenario</u> – The Site 4 Alternative would have a significant impact at the State Route (SR) 52 westbound ramps/Kearny Villa Road intersection.</p> <p><u>Horizon year (Year 2030) scenario</u> – This alternative would have a significant cumulative impact at the SR 52 eastbound off-ramp/Kearny Villa Road intersection and at the SR 163 southbound ramps/Kearny Villa Road intersection.</p>	<p>Impact. No traffic-related impacts would occur.</p>

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
<p>Mitigation. No mitigation measures are proposed.</p>	<p>Mitigation.</p> <p><u>Near-term (Year 2010) scenario</u> – The SR 52 westbound ramps/Kearny Villa Road intersection would be signalized.</p> <p><u>Horizon year (Year 2030) scenario</u> – A second southbound left-turn lane would be added to Kearny Villa Road at the SR 52 eastbound off-ramp/Kearny Villa Road intersection. A second southbound right-turn lane would be added to Kearny Villa Road at the SR 163 southbound ramps/Kearny Villa Road intersection and the intersection would be signalized.</p>	<p>Mitigation. No mitigation measures are proposed.</p>
Air Quality		
<p>Impacts. The forecast combined emissions would be less than the General Conformity Rule <i>de minimis</i> levels and less than 10 percent of the forecast area emissions. This alternative would conform to the State Implementation Plan, and a formal conformity determination would not be required. There would be no significant adverse air quality impacts. There would be no local carbon monoxide (CO) hotspots impacts. There would be no significant impact from toxic air contaminants or odor.</p> <p>Mitigation. No mitigation measures are proposed but measures are proposed to abate dust emissions.</p>	<p>Impacts. The forecast combined emissions would be less than the General Conformity Rule <i>de minimis</i> levels and less than 10 percent of the forecast area emissions. This alternative would conform to the State Implementation Plan, and a formal conformity determination would not be required. There would be no significant adverse air quality impacts. There would be no local CO hotspots impacts. There would be no significant impact from toxic air contaminants or odor.</p> <p>Mitigation. No mitigation measures are proposed but measures are proposed to abate dust emissions.</p>	<p>Impact. No air quality-related impacts would occur.</p> <p>Mitigation. No mitigation measures are proposed.</p>

Site 2 Alternative (Preferred Alternative)	Site 4 Alternative	No Action Alternative
Noise		
<p>Impact. There would be no significant adverse impacts from construction noise, noise generated on the site, or noise generated off-site. The compatibility of land use would be affected by noise from aircraft takeoff and landing events; without adequate noise attenuation, interior noise levels in the Administrative Complex may exceed Marine Corps/AICUZ standards.</p> <p>Mitigation. The Administrative Complex shall be designed to provide an interior noise level less than 50 dBA CNEL.</p>	<p>Impact. There would be no significant adverse impacts from construction noise, noise generated on the site, or noise generated off-site. The compatibility of land use would be affected by noise from aircraft takeoff and landing events; without adequate noise attenuation, interior noise levels in the Administrative Complex may exceed Marine Corps/AICUZ standards.</p> <p>Mitigation. The Administrative Complex shall be designed to provide an interior noise level less than 50 dBA CNEL.</p>	<p>Impact. No noise-related impacts would occur.</p> <p>Mitigation. No mitigation measures are proposed.</p>

Table 2-2
Regulatory Requirements and Actions Potentially Required
to Implement Preferred Alternative

Permit or Statute	Requirement	Regulatory Agency
Clean Water Act (CWA) (Section 404, 33 USC § 1251 et seq.)	Concurrence with the DON's jurisdictional wetlands determination and incorporation by the DON of CWA requirements.	U.S. Army Corps of Engineers
Clean Water Act (Section 402, 33 USC § 1341)	For site construction apart from any munitions response, the construction contractor would be required to obtain a National Pollutant Discharge Elimination System (NPDES) construction activity storm water permit (or comply with the terms and conditions of a general permit). Upon completion of the cemetery annex project, compliance with applicable municipal storm water pollution prevention requirements, including permitting and the adoption of best management practices, would avoid permanent impacts from storm water discharges.	U.S. Environmental Protection Agency; Regional Water Quality Control Board
Endangered Species Act (16 USC § 1531)	Consultation under Section 7 with regard to potential impacts to threatened and endangered species has occurred and USFWS issued a Biological Opinion on 6 April 2007 (Appendix F). USFWS concluded that the Preferred Alternative would not likely jeopardize the continued existence of any threatened and endangered species..	U.S. Fish and Wildlife Service
National Historic Preservation Act (42 USC § 4332)	Consultation under Section 106 has occurred and SHPO has concluded in a letter dated 23 October 2006 that there are no resources on the Preferred Alternative site that are eligible for the National Register (Appendix E).	State Historic Preservation Officer

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CHAPTER 3.0

AFFECTED ENVIRONMENT

Chapter 3 sets forth the Affected Environment of the Proposed Action. The Affected Environment describes the present physical conditions within the area of the Proposed Action. The area, or region of influence, is defined for each environmental issue based upon the extent of physical resources that may be affected directly or indirectly by the Proposed Action and appropriate guidelines of regulatory agencies or common professional practice. Table 3.0-1 summarizes the environmental issues and associated region of influence described in the Affected Environment sections of this EIS.

Table 3.0-1
Environmental Issues and Region of Influence
for the Fort Rosecrans National Cemetery Annex

Environmental Issue	Region of Influence
Land Use	West Miramar and surrounding areas
Socioeconomics	Communities contiguous with the MCAS Miramar sites, including University City and Kearny Mesa
Utilities	MCAS Miramar and contiguous communities
Public Services	MCAS Miramar and contiguous communities
Visual Resources	Sites 2, 4, and viewshed
Cultural Resources	Sites 2 and 4
Biological Resources	Sites 2 and 4
Soils and Geology	Soils - Sites 2 and 4, Geology - San Diego region
Water Resources	MCAS Miramar and associated subbasins
Public Health and Safety	Sites 2 and 4, and surrounding areas
Traffic/Circulation	City of San Diego in vicinity of Sites 2 and 4
Air Quality	San Diego Air Basin
Noise	Sites 2, 4, and traffic study areas

This section of the EIS describes the baseline conditions for each environmental resource against which the potential impacts of the Proposed Action will be compared. Generally, the baseline used for the analysis of environmental impacts under NEPA reflects the conditions present at or about the time the EIS was initiated.

3.1 LAND USE

This section describes existing on-site and surrounding land uses for the two alternative cemetery annex sites located on MCAS Miramar. This section also discusses applicable plans, policies, and ordinances. The information presented in this section was compiled from master plans, general plans, approved, and proposed land use development plans, aerial photographs, and communications with local officials.

3.1.1 MCAS Miramar

Existing Land Uses

MCAS Miramar is divided into three major land use sectors: Main Station, West Miramar, and East Miramar. The Main Station, approximately 3,470 acres (1,404 hectares) and located in the north-central portion of MCAS Miramar, is the primary developed area and contains most of the 350 buildings at MCAS Miramar. West Miramar, approximately 4,276 acres (1730 hectares), is located to the south and west of the Main Station. East Miramar, approximately 15,870 acres (6,422 hectares), is located east of the Main Station, generally east of I-15 and SR 163. Sites 2 and 4 are located within West Miramar.

Large portions of the land use within West Miramar are constrained in their use as a result of aircraft operations. These constrained areas include the runway clear zones, APZs, AICUZ, ESQD arcs, and electromagnetic interference arcs. Each of these areas has specific restrictions to land uses due to safety or noise conditions.

Main Station

A major feature of the Main Station is the airfield, which includes two 12,000-foot-long (3,658 meters) parallel runways; a single, short intersecting runway; helicopter landing pads; and aircraft runway exits. Adjacent to the north side of the runways are aircraft parking areas, aviation maintenance facilities, and airfield operation facilities (control tower, surveillance radar, operations building, etc.). Training facilities are also located in this area. An open area that is required to remain clear due to potential noise impacts surrounds the airfield and associated aviation-related facilities.

Support facilities of MCAS Miramar lie between the airfield and Miramar Road. Numerous land uses are located in this area, including supply/general warehousing, training facilities, general maintenance, medical facilities, community support, officer housing, bachelor quarters, and family housing. Recreation facilities at the Main Station include an active recreation area with playing fields, etc. and a golf course adjacent to Miramar Road.

MCAS Miramar currently allows non-military uses of several parcels and buildings. This is accomplished through lease and license agreements with both public agencies and private companies. Many of the approximately 50 non-military facilities/activities are located in the Main Station area. Some of the users include the American Red Cross, the City of San Diego, the County of San Diego, the Federal Aviation Administration (FAA), the Federal Bureau of Investigation, and the U.S. Post Office.

West Miramar

West Miramar consists of primarily undeveloped areas. A portion of West Miramar contains the Miramar Landfill, a sanitary landfill and recycling operation of the City of San Diego, in which an average 3,800 tons (3,447,302 kilograms) of solid waste is delivered each day. A wastewater treatment facility adjacent to the landfill (north of SR 52) is also operated by the City of San Diego. The Miramar Mounds National Natural Landmark, an area set aside for the preservation of rare plants and geological formations, is located in the southwestern portion of MCAS Miramar directly south of the Main Station area. In 1972, the National Park Service designated the Miramar Mounds National Natural Landmark as a natural landmark overlay, but the site has remained military property. The Miramar Mounds National Natural Landmark supports the largest remaining concentration of San Diego mesa hardpan vernal pools and associated mima mound topography and has supported extensive scientific research and educational programs since its establishment (MCAS Miramar 2000). Other areas located in the West Miramar area include the Hanson Aggregates, Harris Plant, a private asphalt production operation; the San Diego Shotgun Sport Club, and areas of undisturbed open space.

Portions of West Miramar are located under the aircraft departure flight path, and development is restricted due to operational aircraft noise and safety constraints. Consequently, the majority of the area is natural open space. The only activity located in the flight path area is the Miramar Wholesale Nursery, which is located adjacent to I-805 and operates under a lease agreement.

East Miramar

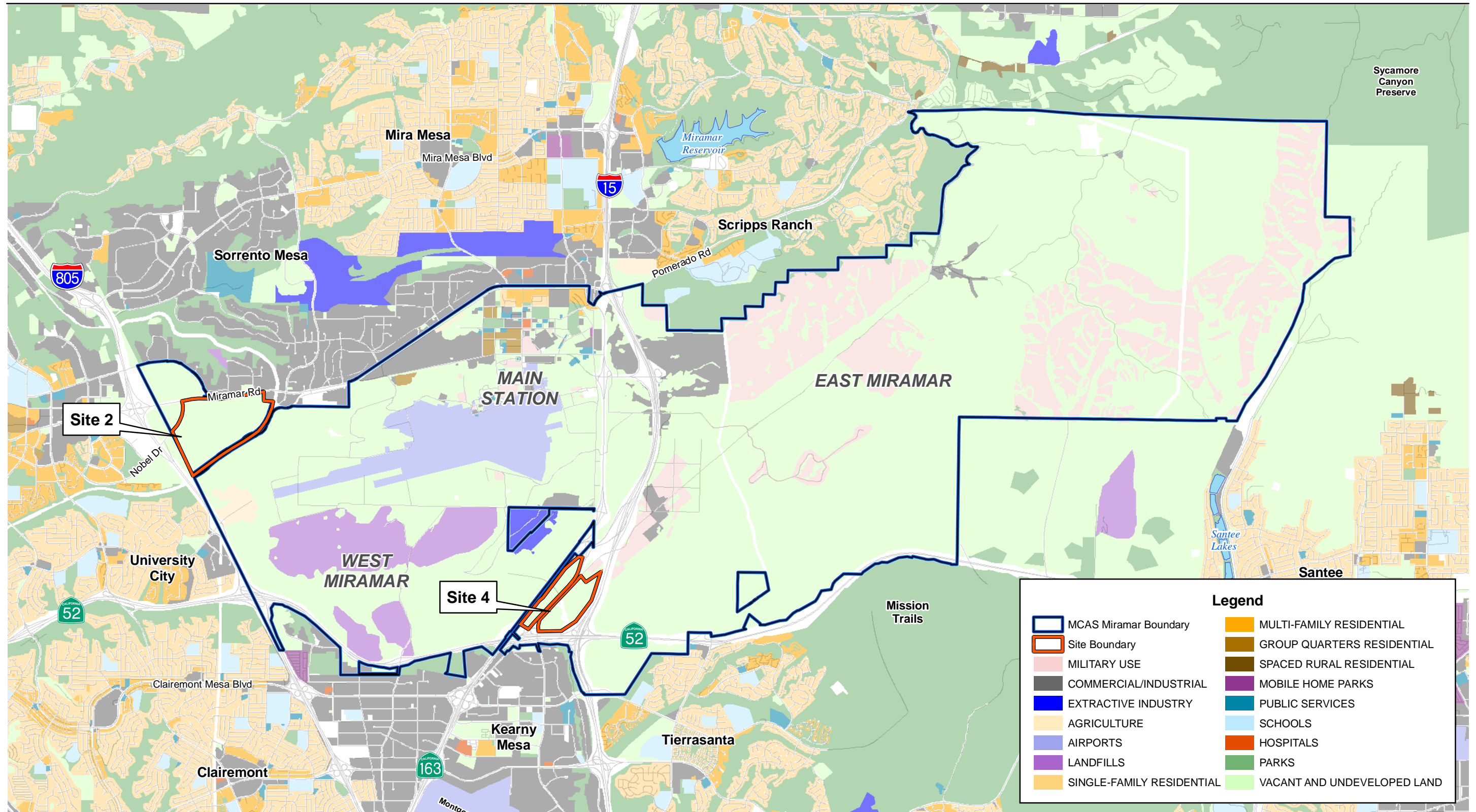
East Miramar is a largely undeveloped area and may be characterized via pockets used by MCAS Miramar and other government activities. A natural conservation area (Research Natural Area) covers a large portion of the area to the east. The 2,000-acre (809-hectare) Research Natural Area was designated by Chief of Naval Operations in 1987 and provides research and educational opportunities for natural habitats in the southeastern area of East Miramar. Camp Elliott, a World War II training base located adjacent to either side of I-15, includes warehousing, small arms ranges, and a San Diego County Sheriff's Department training facility. Also located in East Miramar are military training areas and facilities, ordnance operations, limited recreation, and a Doppler radar facility that is used by the National Weather Service and the FAA.

Site 2 Alternative (Preferred Alternative)

Site 2 as described in Section 2.3.1 is located in the northwest portion of MCAS Miramar known as West Miramar, south of Miramar Road (Figure 3.1-1). This site is approximately 323 acres (131 hectares) and has access to Miramar Road to the north and to Nobel Drive to the northwest. The area, as identified in the conceptual plan, proposes to develop 214 acres (87 hectares) of the site (Figure 2-1). The site is bounded by Miramar Road to the north, the commuter railway to the south and east, I-805 to the west, and Nobel Drive to the northwest. A power line and two pipelines cross the site. This site is currently undeveloped and categorized as undeveloped in the *MCAS Miramar Draft Master Plan* (DON 2005). No military training or operations occur or are planned for this site.

Site 4 Alternative

Site 4 as described in Section 2.3.2 is located in the south-central portion of MCAS Miramar (Figure 3.1-1). The site is approximately 175 acres (71 hectares) and is completely surrounded by freeways. The area, as identified in the conceptual plan, proposes to develop approximately 90 acres (36 hectares) of the site (Figure 2-2). The site is bounded by SR 163 to the west, SR 52 to the south, and I-15 to the east. Kearny Villa Road traverses the site in a north-south direction. Site access would be available from Kearny Villa Road to the west. This site is currently undeveloped and categorized as undeveloped in the *MCAS Miramar Draft Master Plan*. No military training or operations occur or are planned for this site.



Source: USGS.
 1 0 1 Mile
 Scale: 1 : 63,360; 1 inch = 1 Mile

Figure 3.1-1
Existing Land Use

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3.1.2 Adjacent Land Uses

Existing Land Uses

MCAS Miramar is located within the jurisdictional boundaries of the City of San Diego and is bounded on the north, west, and south by the city. The Santee city boundary is contiguous with the eastern border of MCAS Miramar, and two small pockets of land in the unincorporated area of San Diego County are located to the north and northeast of MCAS Miramar.

Site 2 Alternative (Preferred Alternative)

There are a variety of land uses in the area surrounding Site 2 (Figure 3.1-1). To the north of the site lies the Miramar Road corridor, which is lined with commercial (restaurants, furniture and home improvement stores, automobile sales, etc.), office, and service-oriented (automobile repair, etc.) businesses. To the north of this commercial strip are numerous business parks with commercial, office, light industrial, and heavy industrial uses housed primarily in large one- and two-story buildings. The western portion of this area is known as Sorrento Mesa.

The community of Mira Mesa is located to the north of Sorrento Mesa between Sorrento Mesa Boulevard and I-15. Mira Mesa is a community with single-family neighborhoods, multi-family complexes, and supporting services and commercial enterprises (particularly along Mira Mesa Boulevard, which runs approximately parallel to Miramar Road).

Site 4 Alternative

As shown in Figure 3.1-1, the area to the east of Site 4 includes undeveloped areas of East Miramar. Directly south of Site 4 are SR 52, the communities of Kearny Mesa, and the community of Tierrasanta.

The areas adjacent to Site 4 within Kearny Mesa consist of commercial/industrial uses as well as vacant and undeveloped lands. Tierrasanta is located east of Kearny Mesa and south of SR 52. Land uses immediately south of SR 52 and west of Santo Road include a commercial center, a church, and neighborhoods of single-family homes.

3.1.3 Adopted Plans, Policies, and Ordinances

On-site Adopted Plans, Policies, and Ordinances

Several regulatory and planning documents guide land use for Sites 2 and 4, as discussed below.

MCAS Miramar Draft Master Plan

Land use and development on MCAS Miramar is guided by the *MCAS Miramar Draft Master Plan* (MCAS Miramar 2005), which contains development guidelines for optimum utilization of land and airspace to support MCAS Miramar's mission. Although the master plan does not include an updated AICUZ at this time it does contain AICUZ program guidance that is used to site new projects. The overall purpose of the AICUZ program is to create compatible land uses for the various types of facilities, as related to noise levels generated by MCAS Miramar. The master plan identifies Sites 2 and 4 as areas constrained by noise and safety zones as well as areas constrained by habitat management areas I, II, and III. Conformity with habitat management, public safety, and noise is discussed in Sections 3.7, 3.10, and 3.13, respectively.

Marine Corps Air Station, Miramar AICUZ Update Air Installation Compatible Use Zones

An updated AICUZ study for MCAS Miramar has been prepared subsequent to the migration of Marine Corps aviation units at Miramar (MCAS Miramar 2004). This document supersedes the previously adopted Naval Air Station Miramar land use compatibility AICUZ guidelines published in 1992. As discussed above, the AICUZ program is intended to protect public health, safety, and welfare and to prevent the encroachment from degrading the operational capability of military air installations in meeting national security objectives. Portions of the Site 2 Alternative are within APZs I and II, and portions of the Site 4 Alternative are located within APZ I.

Integrated Natural Resources Management Plan

The primary purpose of the INRMP (MCAS Miramar 2006) is to integrate MCAS Miramar's land use need, in support of the military mission, with the management and conservation of natural resources. The INRMP establishes MCAS Miramar's approach and guidelines relative to natural resources to accomplish this end. The INRMP does not dictate land use decisions but rather provides important resource information to support sound land use decisions and natural resource management. This is accomplished, in part, by categorizing all of MCAS Miramar into

Management Areas (MAs) based on existing resources such as vernal pools, threatened and endangered species, riparian areas, other undeveloped areas, and developed areas. Vernal pools (and the sensitive species within them) have the highest ranking (Level I MA); populations of non-vernal pool threatened and endangered species, including the CAGN, least Bell's vireo, willow monardella, and Del Mar manzanita, received the second-highest ranking (Level II MA); and habitat linkages and riparian vegetation are ranked third highest (Level III MA). The remaining undeveloped areas on MCAS Miramar are Level IV MAs, while developed areas are Level V MAs.

Regulatory constraints on land uses relative to MAs are hierarchic in nature. The most constrained areas of use are those supporting vernal pools (Level I) and the least constrained areas of use are developed areas (Level V).

The Site 2 Alternative is within MA Level I, Level II, Level III, and Level IV. The majority of the Site 2 Alternative is within Level IV.

The Site 4 Alternative is within Level I through Level V. The majority of the Site 4 Alternative is within Level I.

Surrounding Adopted Plans, Policies, and Ordinances

MCAS Miramar is federally owned land that is exempt from local and state land use controls. The guiding programs, policies, and plans for the surrounding areas are discussed within this EIS, as they may relate to general concepts that might be applied to the project sites.

City of San Diego Progress Guide and General Plan

The *City of San Diego Progress Guide and General Plan* (City of San Diego 1989) is a comprehensive long-term plan for the physical development of the city, and it presents overall policies for the entire city. The Land Use Element designates the proposed general distribution of the land uses within the city. The land use map in the *Land Use Element of the Progress Guide and General Plan* (City of San Diego 1989) designates MCAS Miramar as "military."

The City of San Diego augments the general, citywide planning policies and goals contained in its *Progress Guide and General Plan* with more specific policies and goals that are contained in 49 respective community plans.

Areas outside San Diego rely on general plans for the unincorporated areas' specific policies and goals.

Mira Mesa Community Plan

The City of San Diego *Mira Mesa Community Plan* (1993) includes the area north of Site 2. This area is located west of I-15 between Carroll Canyon Road and Miramar Road. The land use designation for this area is Industrial, with development consisting of office and retail uses. Land use north of Carroll Canyon east of Camino Santa Fe is residential with the majority of the densities being 4 to 10 dwelling units per acre. Densities increase in the area near the Camino Ruiz and Mira Mesa Boulevard intersection to 10-to-15, 15-to-30, and 30-to-45 dwelling units per acre.

Kearny Mesa Community Plan

The City of San Diego *Kearny Mesa Community Plan* (1992) designates the area south of Site 4 as industrial and commercial. Kearny Mesa has traditionally functioned as an industrially based, regional employment center. The planning area, which encompasses approximately 4,000 acres (1,619 hectares), is located between SR 52 on the north and I-805 and I-15 on the west and east, respectively. The southerly boundary of the planning area consists of properties lying to the south of Aero Drive, and properties extending to Friars Road along the western edge of I-15.

Tierrasanta Community Plan

The City of San Diego *Tierrasanta Community Plan* (1987) designates the area southeast of Site 4 as residential with single-family and multi-family homes. Densities range from 5 to 14 dwelling units per acre, with an average of approximately 7 dwelling units per acre.

Natural Community Conservation Planning

The regional conservation planning efforts conducted under the Natural Community Conservation Planning (NCCP) Act of 1991 have evaluated, or are evaluating, the distribution, and extent of sensitive habitats and target sensitive plant and animal species in San Diego County. Two NCCP subregional plans finalized for San Diego County are the MSCP and the Multiple Habitat Conservation Program (MHCP). The MSCP represents the multijurisdictional habitat conservation planning effort for the southwestern portion of the county. The County of San Diego's Subarea Plan was approved by the wildlife agencies in 1998. The MHCP represents

the subregional planning effort for the northwestern portion of the county. The MHCP was approved by the San Diego Association of Governments (SANDAG) in 2003. An MSCP subarea plan is currently being developed for the northeastern portion of San Diego County, east of the MHCP subregion. NCCP permits will be issued to participating cities upon completion and approval of their subarea plans.

The Site 2 and 4 Alternatives occur entirely within the boundaries of MCAS Miramar. Although MCAS Miramar occurs within the NCCP region, it is a military installation that is not a participant within any NCCP jurisdictional planning areas. However, the MCAS Miramar INRMP was prepared in compliance with the Biological Opinion (1-6-95-F-33) and Section 404 Permit number 95-20158-ES for the Realignment of Naval Air Station Miramar to the MCAS Miramar, and the Sikes Improvement Act of 1997. These permits require MCAS Miramar to develop and implement their proposed Multiple Species Habitat Management Plan consistent with guidelines used for subarea plans under the MSCP.

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3.2 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

3.2.1 Introduction

This section presents local and regional demographic and economic information as it relates to the project site and surrounding area.

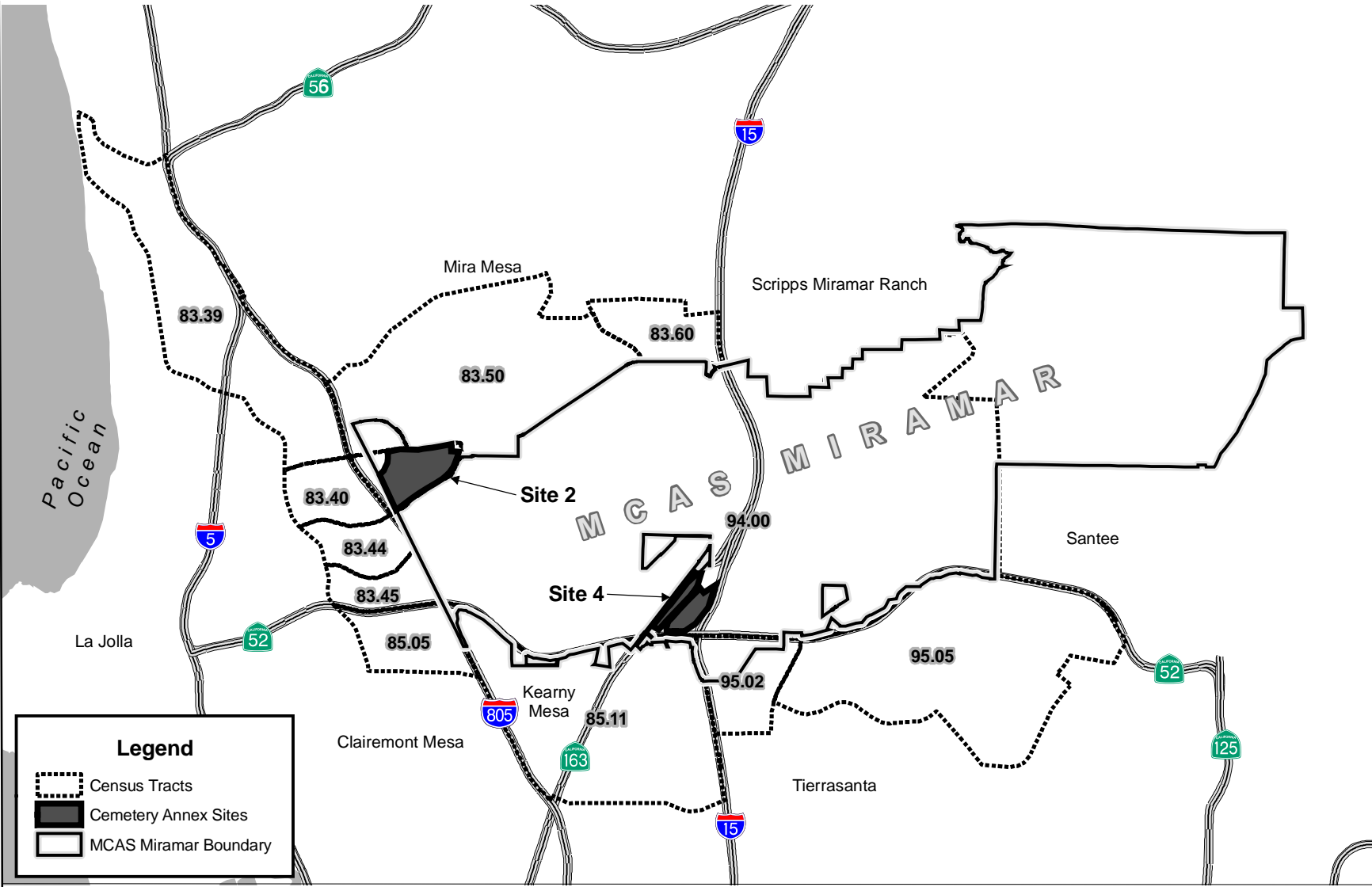
The region of influence for socioeconomic analysis as it applies to the cemetery annex is San Diego, with particular emphasis on the census tracts that surround the two proposed cemetery sites. In addition to general socioeconomic information, this section also includes a discussion of Executive Order 12898 on environmental justice, and Executive Order 13045, which addresses risks to children's health and safety.

3.2.2 Existing Conditions

This section presents information on local and regional demographic characteristics as well as income and employment information as it relates to the project sites and surrounding area. The information relating to population, housing, race/ethnicity, employment, and income for local jurisdictions and the region as a whole is primarily derived from the 2000 Census, the most recent comprehensive source of data. For the purposes of demographic and economic analysis, the study area encompasses a total of 11 census tracts surrounding or adjacent to Sites 2 and 4 (Census tracts 83.39, 83.40, 83.44, 83.45, 83.50, 83.60, 85.05, 85.11, 94.00, 95.02, and 95.05) (Figure 3.2-1).

3.2.2.1 Population and Housing

As of 2000, the census tracts within the project study area showed a total population of 49,930 persons. As shown in Table 3.2-1 and Figure 3.2-1, more heavily populated areas within the study area were located immediately west of Site 2 (tracts 83.40, 83.50, and 83.60) and southeast of Site 4 (tract 95.05). In addition to these areas, tract 94.00, which consists of a large portion of MCAS Miramar, showed a population of 6,473 persons as of 2000. More sparsely populated areas within the study area were located immediately northwest of Site 2 (tract 83.39) and south of Site 4 (tract 85.11).



Source: GeoLytics 2006; SANDAG 2006; SANGIS 2006

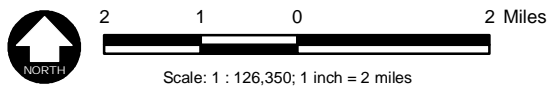


Figure 3.2-1
Contiguous Census Tracts

**Table 3.2-1
Population and Housing**

Census tracts	Population 1990	Population 2000	Population per square mile 2000	Population Change 1990-2000	Housing units 1990	Housing units 2000	Housing Units Change 1990- 2000
83.39	} 4,043	1,770	387	} 74.9%	} 2,171	875	} 85.6%
83.40		5,304	5,927			3,155	
83.44	} 7,259	3,514	4,538	} -7.5%	} 2,969	1,338	} -0.1%
83.45		3,197	4,564			1,627	
83.50	N/A	6,564	1,097	N/A	N/A	2,218	N/A
83.60	N/A	5,921	5,504	N/A	N/A	2,197	N/A
85.05	N/A	5,639	4,911	N/A	N/A	2,197	N/A
85.11	933	1,177	197	+26%	468	474	+1.3%
94.00 MCAS Miramar	3,089	6,473	271	+110%	190	543	+186%
95.02	3,864	3,578	2,738	-7%	1,543	1,526	-1%
95.05	N/A	6,793	1,017	N/A	N/A	2,815	N/A
City of San Diego	1,109,962	1,223,400	3,772	+10.1%	431,542	469,689	+8.8%

* Population data for census tracts 83.40 and 83.50 were not available for 1990 due to subsequent county redistricting. Tract 83.40 was constructed by splitting tract 83.39 into two tracts between 1990 and 2000. Therefore, a comparison between 1990 and 2000 cannot be made. Similarly, tract 83.50 (in 2000) results from combining two tracts (83.18 and 83.48), of which the boundaries encompass a larger area than is reflected in tract 83.50 within our study area.

Sources: U.S. Bureau of the Census 1990, 2001.

Given the extent of boundary redistricting that occurred within the study area between 1990 and 2000, direct comparisons between decennial censuses are not possible for many individual tracts. However, as a number of tracts were “split” (for example, tract 83.17 was split into tracts 83.39 and 83.40, and tract 83.14 was split into tracts 83.44 and 83.45), overall comparisons as to change over time can still be made in some instances. While one tract (95.02) showed a marginal population decrease, other portions of the study area experienced marked population growth over the last decade, often to a much greater degree than the city as a whole (10.1 percent). Between 1990 and 2000, the population of tracts 83.39 and 83.40 grew by

74.9 percent. The population of tract 94.00 grew substantially (110 percent) between 1990 and 2000.

As of 2000, population density varied widely throughout the study area, ranging from as low as 197 persons per square mile to as high as 5,927 persons per square mile. Several tracts in proximity to Site 2 (83.40, 83.44, 83.45, 83.60, and 85.05) showed elevated population densities, whereas tracts 94.00 (MCAS Miramar), and 85.11 and 95.02 to the south of Site 4, showed much lower population densities. In comparison, as of 2000, San Diego showed an overall population density of 3,772 persons per square mile.

Similar to population and density within the study area (where data were available), the change in housing stock varied substantially between 1990 and 2000. While San Diego housing stock increased by a total of 8.8 percent over this period, changes in housing stock within the study area ranged from a substantial increase of 186 percent (tract 94.00) to minimal increases of 1.3 percent (tract 85.11) and even marginally falling (tract 95.02). In most cases, this rate of change did not exceed or even keep pace with the population increases over the same period.

3.2.3 Race/Ethnicity

The CEQ defines the term “minority” as persons from any of the following groups: Black/African American; Hispanic, regardless of race; Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native. Additionally, for the purposes of this analysis, “minority” also includes all other nonwhite racial categories such as “some other race” and “two or more races.”

As shown in Table 3.2-2, the study area, with few exceptions, exhibits less racial and ethnic diversity in comparison to San Diego. White populations within the study area were, for the most part, markedly higher than that of the city average (60.2 percent), although tracts 83.50 and 83.60 were notable exceptions showing substantially lower white populations of 38.4 percent and 46.1 percent, respectively. Conversely, these tracts (83.50 and 83.60) showed substantially higher Asian populations (47.3 percent and 33.6 percent, respectively) than the rest of the study area and San Diego as a whole. Other racial categories within the study area were mostly proportionally lower than the city average. For example, this trend was seen within Black/African American populations, where all tracts with the exception of 94.00 (MCAS Miramar) at 13.1 percent, were, often substantially, below that of the San Diego average (7.9 percent).

**Table 3.2-2
Race and Ethnicity (percent)
2000**

Census Tract	White	Black/ African American	American Indian	Asian	Hawaiian & Pacific Island	Other Race	Two or more races	Hispanic (any race)	Total minority % ¹
83.39	63.3	1.6	0.3	28.0	0.2	2.7	4.0	7.0	40.7
83.40	76.0	1.8	0.4	16.8	0.3	1.4	3.3	7.0	29.2
83.44	82.1	1.6	0.34	10.4	0.14	1.9	3.4	7.3	22.4
83.45	85.8	0.75	0.16	9.8	0.0006	1.0	2.4	4.5	17.3
83.50	38.4	3.8	0.4	47.3	0.5	3.7	6.0	8.9	65.5
83.60	46.1	6.7	0.73	33.6	0.72	6.3	6.0	15.3	60.8
85.05	72.5	1.9	1.0	12.9	0.87	6.7	4.6	17.3	4.3
85.11	75.2	4.1	1.5	8.2	1.2	6.1	3.7	17.5	34.7
94.00 MCAS Miramar	62.1	13.1	1	5.4	0.7	13.1	4.7	20.6	43.0
95.02	80.1	3.6	0.25	9.8	0.95	1.6	3.6	8.8	26.0
95.05	73.7	3.0	0.40	15.7	0.50	2.2	4.4	7.0	30.0
City of San Diego	60.2	7.9	0.6	13.6	0.5	12.4	4.8	25.4	51.0

¹ Total minority population consists of persons from all minority race and ethnicity categories. It is important to note that race and ethnicity are entirely separate categories that at times overlap (e.g., a person can be classified as both White [race] and Hispanic [ethnicity]). For this reason, when calculating Total Minority for a given population, White Non-Hispanic persons are excluded.

Source: U.S. Bureau of the Census 2001.

3.2.4 Income and Economy

Recent census data on per capita income, median household income, and poverty levels are presented in Table 3.2-3 along with recent unemployment levels.

Table 3.2-3
Income, Poverty, and Unemployment (percent)
2000

Census Tract	Per capita income (\$)	Median household income 1999 (\$)	Below poverty level – individuals (%)	In Armed Forces (%)	Civilian labor force (%)	Unemployment (% of civilian labor force)
83.39	21,910	42,717	31.0	0.60	94.7	4.7
83.40	43,531	64,554	16.1	1.0	91.6	7.4
83.44	31,643	63,047	14.7	0.0	96.8	3.2
83.45	36,778	45,667	7.7	0.0	96.0	4.0
83.50	22,545	60,828	5.0	3.7	93.4	2.9
83.60	20,798	52,867	7.2	5.0	90.7	4.3
85.05	19,876	46,074	7.3	1.8	93.5	4.7
85.11	17,760	34,191	8.5	1.0	94.3	4.7
94.00 MCAS Miramar	13,504	38,796	6.4	88.5	10.6	0.9
95.02	29,112	58,869	3.0	3.7	92.6	3.7
95.05	36,823	76,523	2.2	3.8	89.5	6.7
City of San Diego	23,609	45,733	14.6	5.8	88.4	5.8

Source: U.S. Bureau of the Census 2001.

As of 2000, per capita income for San Diego was \$23,609 and median household income was \$45,733.¹ Per capita income within the study area ranged from \$13,504 (tract 94.00) to \$43,531 (tract 83.40), and remained relatively evenly divided between tracts that showed values above (five tracts) or below (six tracts) the San Diego average. With regard to general geographic spread, tracts showing higher per capita income values were located immediately west of Site 2 (tracts 83.40, 83.44, and 83.45) and east of Site 4 (tract 95.05), with tracts showing lower values located to the north, immediately surrounding, and south of Site 2 (tracts 83.39, 83.50, 83.60, 94.00, and 85.11).

¹ 2000 Census determines per capita and median income based upon income received in calendar year 1999.

Median household income within the study area ranged from \$34,191 (tract 85.11) to \$76,523 (tract 95.05). A majority of tracts (seven tracts) showed values above the San Diego average. With regard to general geographic spread, tracts showing higher median household income values were located immediately west and north of Site 2 (tracts 83.40, 83.44, 83.45, 85.05, 83.50, and 83.60), and east of Site 4 (95.02 and 95.05) with tracts showing lower values located to the north of, surrounding, and south of Site 2 (tracts 83.39, 94.00, and 85.11).

Only two tracts within the study area showed populations below the poverty level proportionally greater than of the San Diego average (14.6 percent). Tract 83.40 was, at 16.1 percent, marginally above the city average but tract 83.39 at 31.0 percent was substantially higher. The majority of the study area showed populations below the poverty level proportionally lower than that of the city average, with tracts 83.50, 94.00, 95.02, and 95.05 at substantially lower levels, at 5.0 percent, 6.4 percent, 3.0 percent, and 2.2 percent, respectively.

As of 2000, the average unemployment level with San Diego was 5.8 percent. Unemployment levels within the study area ranged between 0.9 percent (tract 94.00) to 7.4 percent (tract 83.40), with the very low levels found in tract 94.00 potentially explained by the very high military population present.

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3.3 UTILITIES

This section will address utilities for Sites 2 and 4. The utilities addressed include water, sewer, reclaimed water, natural gas and electricity, and solid waste.

Water

Up to 90 percent of the San Diego region's water is imported from the Colorado River and Northern California by a single supplier, the Metropolitan Water District (MWD) of Southern California. The rest comes from local water sources including groundwater, local surface water, recycled water, seawater desalination, and conservation. The San Diego County Water Authority (SDCWA) has five major pipelines with the capacity to carry up to 925 million gallons a day (mgd). These pipelines bring either treated or untreated water into San Diego County from the MWD. The SDCWA purchases water from the MWD and delivers it to its 23 member agencies through two aqueducts containing five large-diameter pipelines. The aqueducts follow general north-to-south alignments, and the water is delivered largely by gravity. Delivery points from the MWD are located south of the Riverside/San Diego county line (SDCWA 2006).

The City of San Diego is one of the local agencies that receive water from the SDCWA. The City of San Diego provides potable water to MCAS Miramar under a contract. The main connection to the City of San Diego water system is located along the northwest side of MCAS Miramar near Miramar Road via a metered 16-inch (40.6-centimeter) line. A backup 16-inch (40.6-centimeter) connection point is also provided on the northeast side of MCAS Miramar at Kearny Villa Road.

The greatest quantity of water used by member agencies in a single year was 613 mgd in fiscal year 2002, of which 550 mgd was imported (SDCWA 2002).

Sewer

Under a contract with the City of San Diego, wastewater is collected on MCAS Miramar and discharged to the MWD's Point Loma Wastewater Treatment Plant (PLWTP). Sewer system service for MCAS Miramar is based on quality of sewage and amount of water used. The PLWTP provides primary treatment and currently treats an average of 175 mgd. The PLWTP discharges the treated sewage into the Pacific Ocean 4.5 miles (7.2 kilometers) west of Point Loma. The plant services a 450-square-mile (1,166-square-kilometer) area and has a capacity of 240 mgd (City of San Diego 2006a). A sewer trunk line ends south of Site 2 and runs east into

another sewer trunk line in Kearny Villa Road that goes to the PLWTP. Another sewer trunk line is proposed for the I-805 right-of-way west of Site 2 and one is in Miramar Road. The nearest existing sewer trunk lines are in Kearny Villa Road and to the south of Site 4. Sites 2 and 4 do not contain any on-site sewer facilities.

Reclaimed Water

The North City Water Reclamation Plant is located across Miramar Road north of Site 2. Reclaimed water produced at the North City Water Reclamation Plant is distributed throughout the northern region of San Diego via an extensive reclaimed water pipeline. More than 45 miles (72 kilometers) of distribution pipelines are installed in Mira Mesa, Miramar Ranch North, Scripps Ranch, University City, and Torrey Pines to provide reclaimed water to customers for irrigation, landscaping, and industrial use. Reclaimed pipelines, sprinkler heads, meter boxes, and other irrigation equipment are color-coded purple to distinguish reclaimed water pipes from drinking water systems (City of San Diego 2006b). A reclaimed water line extends north to south through Site 2.

Natural Gas and Electricity

Natural gas and electrical service are provided to MCAS Miramar by SDG&E. There is an existing gas main along I-805, which would service Site 2. Site 4 could be serviced by a main that crosses directly through the site from north to south and another that crosses north of the site from east to west. An overhead 230-kV line crosses Site 2 from north to south. These lines are connected with an overhead 69-kV transmission line that ends at Miramar Way, northeast of the site. In addition, there is an existing 12-kV underground circuit on the north side of Miramar Road and an overhead 12-kV line that extends in a northeast direction near the southern border of Site 2. Site 4 would be served by a 69-kV line that runs north to south along Kearny Villa Road and possibly by the 138- and 230-kV electric lines that run north to south through East Miramar.

Solid Waste

The solid waste facility serving MCAS Miramar is the Miramar Sanitary Landfill, located in the southwest portion of MCAS Miramar, north of SR 52. The land is owned by the DON (MCAS Miramar) and leased to the City of San Diego under an easement that expires in the year 2007. The City of San Diego Environmental Services Department manages the facility, which

has approximately 11.9 million tons (10.8 million metric tons) of total available space to accommodate solid waste until the year 2012.

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3.4 PUBLIC SERVICES

This section addresses fire service and police protection. Schools are not discussed in this section since the Proposed Action is for the construction and operation of a cemetery annex and would not generate any demand for school services. The Proposed Action would not result in children being relocated to the area and would not have any potential impact on schools; therefore, school services are not discussed further.

Fire Service

The Marine Corps Fire Department at MCAS Miramar is responsible for on-Station fire protection. The MCAS Miramar Fire Department provides responses to a variety of emergency situations. Included in this are structural and wildland fire protection, secondary support for airfield fire fighting, emergency medical care, and basic life support. They also respond to gas leaks, hazardous materials situations, electrical hazards, and basically all emergency situations. The on-Station facilities include three stations (Station 61, Station 62, and the Aircraft Rescue and Firefighting Station [ARFF]). Fire Station 61 is located at the intersection of Mitscher Way and Miramar Way and provides emergency services to the west side of MCAS Miramar. Fire Station 61 is staffed with two engine companies of 4 personnel each, 24 hours a day, 7 days a week. It houses a variety of fire apparatus that includes the following:

- Two Type I Pumpers
- One Type III Brush Truck (4WD)
- One Type III Water Tender (4WD)
- One Medium Rescue Apparatus
- One Paramedic Ambulance
- One Battalion Chief Command Vehicle

Fire Station 62 is located on “H” Avenue in Camp Elliott and provides emergency services to the east side of MCAS Miramar. Station 62 is staffed with one engine company of 4 personnel, 24 hours a day, 7 days a week. It houses the following fire apparatus:

- One Type I Pumper
- One Type III Brush Truck (4WD)
- One Medium Duty Hazmat/Decon Truck
- One Reserve Engine

The ARFF, located on the airfield, is exclusively used to respond to aircraft fire situations and is not used for any other fire responses. MCAS Miramar is planning to construct an additional new fire station in East Miramar in 2008. The MCAS Miramar Fire Department is a party to mutual aid agreements with the County of San Diego and the City of San Diego under the authority of the Reciprocal Fire Protection Act (42 USC § 1856a). Only in an emergency fire situation would local fire departments provide backup support to MCAS Miramar.

Police Service

Security at MCAS Miramar is provided by the Provost Marshal Office (PMO) located at the intersection of Miramar Way and Gonsalves Avenue. The security force is composed of 59 military police personnel. Only in an emergency situation would the San Diego Police Department provide backup support to MCAS Miramar.

3.5 VISUAL RESOURCES

This section provides a description of the visual resources and visual quality of the proposed alternatives discussed in Chapter 2 and the surrounding areas. Visual resources are the physical features on a landscape, such as land, water, vegetation, and structures.

3.5.1 Existing Conditions

Site 2 Alternative (Preferred Alternative)

Site 2 is located on approximately 323 acres (131 hectares) of undeveloped land within MCAS Miramar property (Figure 2-1). An unpaved service access road is located on the site. No scenic corridors or designated scenic highways are located on Site 2. Utility lines transect the site in a north-south direction. The topography of Site 2 is relatively flat natural terrain ranging from approximately 300 to 400 feet (91 to 122 meters) above mean sea level (AMSL) and is the mesa edge north of Rose Canyon and south of Miramar Road. With the exception of the service access road and the utility lines, Site 2 is generally undeveloped and vegetated land, including Diegan coastal sage scrub.

Site 4 Alternative

Site 4 is located on approximately 175 acres (71 hectares) within MCAS Miramar property north of Murphy Canyon and east of San Clemente Canyon (Figure 2-2). Kearny Villa Road traverses in a north-south direction and bisects the site. No scenic corridors or designated scenic highways are located on Site 4. Utility lines transect the eastern portion of the site in a north-south direction, specifically following the eastern side of Kearny Villa Road. The topography of Site 4 is relatively flat natural terrain ranging from approximately 370 to 440 feet (113 to 134 meters) AMSL with Kearny Villa Road located at the highest elevation point. With the exception of Kearny Villa Road, Site 4 is undeveloped with disturbed vegetation.

3.5.2 Visibility from Surrounding Areas

Sites 2 and 4 as well as the majority of the surrounding areas are located on MCAS Miramar property. As discussed in Section 3.1, adjacent areas outside of MCAS Miramar property are located in San Diego, specifically within the University City Community Plan for Site 2 and the Tierrasanta Community Plan (City of San Diego 1987) and the Kearny Mesa Community Plan (City of San Diego 1992) for Site 4. The area within the University City Community Plan (City

of San Diego 1990b) designates the areas surrounding Site 2 to the west as dedicated open space/park lands. The area adjacent to the south of Site 4 is designated as industrial within the Kearny Mesa Community Plan, specifically in the Kearny Mesa area.

Site 2 Alternative (Preferred Alternative)

This alternative is bounded by roadways along the western perimeter with Nobel Drive and Miramar Road along the northern perimeter. I-805 is located also to the west but is not adjacent to the site. A small area of undeveloped land is located between Site 2 and I-805. The segment of Nobel Drive located along the northwestern perimeter of Site 2 does not have any development located on either side of the roadway. A residential area is located on Nobel Drive west of I-805. Several high-rise commercial-office complexes located farther west at the intersection of La Jolla Village Drive and Towne Centre Drive have potential views of Site 2. A number of businesses, specifically commercial and industrial, are located along the north side of Miramar Road and a car dealership is located along the south side of Miramar Road adjacent to the northeastern perimeter of Site 2. The Atchison Topeka and Santa Fe railroad corridor is located along the eastern and southern boundaries of Site 2. Rose Canyon is located to the south of Site 2 and follows the railroad alignment. South of the railroad corridor is the Miramar Wholesale Nursery located east of I-805 at the eastern end of Governor Drive. No scenic corridors or designated scenic highways are located near Site 2.

Site 4 Alternative

This alternative is bounded entirely by roadways, specifically freeways. I-15 is located along the eastern perimeter. SR 163 is located along the western perimeter. SR 52 is located along the southern perimeter. I-15 and SR 163 merge north of Site 4. Undeveloped and vegetated land within MCAS Miramar primarily surrounds Site 4 to the north, east, and west with two exceptions. Adjacent to the northeastern portion of Site 4 located east of Kearny Villa Road and I-15 is an existing service yard operated and maintained by Caltrans. This service yard has a few one-story building structures and a small parking lot with a driveway connecting to Kearny Villa Road. South of SR 52 is the densely developed area of Kearny Mesa. This urbanized area is composed primarily of commercial office buildings and businesses. San Clemente Canyon is located west of SR 163 and Murphy Canyon is located south of SR 52 and west of I-15. No scenic corridors or designated scenic highways are located near Site 4.

3.5.3 Plans and Policies

Planning documents set forth goals, policies, and restrictions that relate to the visual environment. The applicable plan as related to visual resources for the proposed project alternatives is described below.

MCAS Miramar Draft Master Plan

The *MCAS Miramar Draft Master Plan* (DON 2005) directs the development on MCAS Miramar with guidelines for optimum utilization of land and airspace. Sites 2 and 4 are located within areas designated as non-military use on MCAS Miramar. Site 4 is located within the land use designation of undeveloped and no military training or operations occur at this location.

The Department of Defense (DoD) has established APZs, which define the areas that would be more likely to be affected if an aircraft-related accident were to occur. In order of decreasing hazard, the three different APZs for MCAS Miramar are the Clear Zone (CZ), APZ I, and APZ II. The CZ, which extends 3,000 feet (914 meters) from the end of the runway, has the highest probability of being impacted by accidents. The potential for accidents decreases for APZ I, which normally extends 5,000 feet (1,524 meters) beyond the CZ, and for APZ II, which normally extends 7,000 feet (2,134 meters) beyond APZ I areas. Portions of Sites 2 and 4 are located within APZ I, the Inner Horizontal Surface, and also within the Conical Surface, which extends outward and upward at a slope of 20 to 1 to a height of 500 feet (152 meters) above the established airfield elevation. The Conical Surface is one of the designated airfield safety criteria in accordance with Federal Aviation Regulation Part 77. The Inner Horizontal Surface is an oval-shaped planed surface 150 feet (45.7 meters) above the established airfield elevation, extending 7,500 feet (2,286 meters) from the runway end and centerlines. This airfield safety criterion provides height restrictions, lateral clearances, and clear zones/takeoff safety zones. Due to these height and safety restrictions associated with the APZs and Inner Horizontal Surface, very few structures would be located within the viewshed of the proposed cemetery annex at either Site 2 or Site 4.

Design guidelines based upon the MCAS Miramar Base Exterior Architectural Plan (BEAP) provide aesthetic and functional guidelines to accommodate development at MCAS Miramar. This document provides an opportunity to implement aesthetic improvements parallel with proposed renovations needed to accommodate the Marine Corps. In addition, it provides design

direction for future projects. It is intended to provide guidelines to direct future project construction, renovation, demolition, and maintenance.

3.6 CULTURAL RESOURCES

An archaeological study in support of the development of the Fort Rosecrans National Cemetery Annex on MCAS Miramar was conducted in compliance with Section 106 of the National Historic Preservation Act (42 USC § 4332). The study included archival research and archaeological survey to identify potentially significant cultural resources that may be affected by the Proposed Action. The result of the study indicated that five archaeological sites exist within Site 2 (Preferred Alternative) and one site within Site 4. These sites were evaluated for their eligibility to the National Register of Historic Places (National Register).

3.6.1 Site 2 Alternative (Preferred Alternative)

This section will address the results of the records search and field survey conducted for this alternative. The evaluation program for this alternative will also be addressed.

Results of the Record Searches

Approximately 81 percent (285 acres [115 hectares]) of the 323 acres (131 hectares) in Site 2 were previously surveyed for cultural resources (Smith 1991; Strudwick and Gallegos 1994) (Table 3.6-1). The previous surveys identified five prehistoric archaeological sites, of which two (CA-SDI-12,408 and CA-SDI-12,410) have been evaluated (Table 3.6-2) (Smith 1993). Both of these have been formally determined to not be eligible for the National Register (SHPO 1995). Sites CA-SDI-12,409, CA-SDI-12,438, and CA-SDI-12,439 were evaluated as part of this action in 2006 (York and Bowden-Renna 2006).

**Table 3.6-1
Previous Surveys at Site 2**

Author	Title	Date
Smith, Brian F.	An Archaeological Survey Report for the Proposed Nobel Drive/ I-805 Interchange and extension Project – An Archaeological Survey for a Road Improvement Project. Brian F. Smith and Associates.	1991
Strudwick, Ivan and Dennis Gallegos	Historical/Archaeological Survey Report for the Proposed Fiesta Island Replacement Project and Northern Sludge Processor, Naval Air Station, Miramar, San Diego, California. Gallegos and Associates.	1994

Table 3.6-2
Previously Recorded Archaeological Sites at Site 2

Site Number	Description	Dimensions (m)	National Register Status
CA-SDI-12,408	Seasonal camp and lithic scatter	198 x 143	Not Eligible
CA-SDI-12,409	Lithic scatter	53 x 30	Not Evaluated
CA-SDI-12,410	Lithic scatter	152 x 49	Not Eligible
CA-SDI-12,438	Lithic scatter	76 x 47	Not Evaluated
CA-SDI-12,439	Lithic scatter	30 x 26	Not Evaluated

Field Survey Results

A field survey was conducted of the roughly 68 acres (27 hectares) of Site 2 that had not previously been studied (Shaver and York 2006). The survey was conducted by a four-person team of archaeologists spaced evenly about 50 feet (15 meters) apart as terrain and vegetation permitted. In areas of poor ground visibility (less than 10 percent), a systematic program for the removal of surface vegetation was implemented. The clearance program consisted of a series of 3-foot-by-3-foot (1-meter-by-1-meter) surface raked areas every 130 feet (40 meters) within a grid. Areas excluded from the ground cover clearance program were those areas identified as vernal pools based on biological surveys conducted in 2005. No additional cultural sites were found during the cultural resources field survey.

Evaluation Program

An archaeological testing and evaluation program was conducted for three previously unevaluated (CA-SDI-12,409, -12,438 and -12,439) sites identified within Site 2 (York and Bowden-Renna 2006) to assess National Register eligibility. The sites were relocated using the original sites forms, georeferenced aerial maps, and using a submeter Global Positioning System (GPS). A surface reconnaissance at 10- foot to 16-foot (3-meters to 5-meters) intervals to confirm site boundaries and identify any concentrations of cultural materials or features was conducted at each site. All surface artifacts observed were recorded and site datums were established using a GPS. A series of 12-inch-by-12-inch (30-centimeters-by-30-centimeters) shovel test pits (STPs) and a single 3-foot-by-3-foot (1-meter-by-1-meter) excavation unit (TEU) were hand excavated at each site. No temporally diagnostic artifacts were found, or any materials suitable for radiocarbon dating. Additionally, the sites appear limited to the surface. The testing results indicate that the sites were not used residentially, and the assemblages may simply represent the production of expedient tools by people passing through the area. Based on these

investigations, it is concluded that CA-SDI-12,409, -12,438, and -12,439 do not meet the criteria of eligibility for the NRHP.

3.6.2 Site 4 Alternative

Results of the Records Searches

Information provided by MCAS Miramar revealed that a total of 11 cultural resources surveys have been conducted within Site 4, encompassing approximately 91 percent of the site (Table 3.6-3).

The previous surveys identified one large site (CA-SDI-13,817H) in the northeastern portion of Site 4 (Table 3.6-4). As recorded in 1995 by Ogden Environmental and Energy Services Co. Inc., the site is described as a series of foundations and structures belonging to the former Camp Elliot (James et al. 1995). Subsequently, William Manley Consulting identified another locus of the site to the north of Site 4 (Bischoff and Manley 1995). Both surveys identified foundations, remnants of asphalt, and structures associated with Camp Elliot; however, many of the features had been previously damaged or removed (James et al. 1995; Cooley et al. 1996). The site was determined to not be eligible for the National Register following the results of investigations associated with the Base Realignment and Closure process (Bischoff and Manley 1995; SHPO 1996).

Field Survey Results

A field survey was conducted for all portions of Site 4 that had not previously been studied (Shaver and York 2006). A total of 24 acres (9.7 hectares) in Site 4 were surveyed. As described for the Site 2 Alternative, the field survey was conducted by a four-person team of archaeologists spaced evenly about 50 feet (15 meters) apart as terrain and vegetation permitted. Site 4 consisted of level terrain and had been subjected to several recent fires, which provided excellent surface visibility. No new resources were identified within the surveyed areas.

**Table 3.6-3
Previous Surveys at Site 4**

Author	Title	Date
Carrico, Richard, Joyce Clevenger, Anne Cooper, and Dennis Gallegos	Historic Properties Inventory Report for the Mission Valley Water Reclamation Project, San Diego, California. ERC Environmental and Energy Services, San Diego.	1990
Carrillo, Charles	Archaeological Survey Report for a Proposed Extension of State Route 52 in San Diego, California. Department of Transportation, California, San Diego.	1982
Carrillo, Charles	Archaeological Survey Report for the Extension of Several Highway Route Alternatives in Kearny Mesa, San Diego, California. Department of Transportation, California, San Diego.	1982
Carrillo, Charles and Karen Crotteau	Archaeological Survey of Several Highway Route Alternatives in Kearny Mesa, San Diego, California 1 1206-047070; 1 1206-047040; 11-SD-52 3.3/7.4. Department of Transportation, California, San Diego.	1981
City of San Diego	Clean Water Program for Greater San Diego Santee Basin Water Reclamation Project Draft Environmental Impact Report. San Diego.	1990
Cooley, Theodore G., Kathleen A. Crawford, and Delman L. James	Final Cultural Resources Technical Report Naval Air Station Miramar Realignment, San Diego, California. Ogden Environmental and Energy Services Co., Inc., San Diego.	1996
Crafts, Karen	Letter Report Regarding Proposed Automated Highway System Project. Department of Transportation, California, San Diego.	1996
Lloyd, Deborah	An Archaeological Survey Report for Two Park and Pool Lots (11-SD-15 P.M. R11.8M 19.3) 11208-189550. Department of Transportation, California, San Diego.	1981
Price, H.J. Jr.	Archaeological Survey Report for a Proposed Route 52, Interstate 15, and the Route 52 Interchange P.M. 6.8/88.8(52). Department of Transportation, California, San Diego.	1981
Shackley, Michael S. and Carol Serr	Cultural Resources Assessment of AT&T's Proposed San Bernardino to San Diego Fiber Optic Cable, San Bernardino, Riverside and San Diego Counties, California. Brian F. Mooney and Associates, San Diego.	1993
Snyder, J.	Memo: Architectural Survey - Camp Elliot. Department of Transportation, California, San Diego.	1978

**Table 3.6-4
Previously Recorded Archaeological Site at Site 4**

Site Number	Description	Dimensions (m)	Status
CA-SDI-13,817H	Camp Elliot	804 x 2,011	Not Eligible

Evaluation Program

Because site CA-SDI-13,817H has already been determined ineligible for the National Register and no additional cultural sites were found during the field survey, no evaluation program is required for Site 4.

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3.7 BIOLOGICAL RESOURCES

Biological resources analyses were conducted for the Sites 2 and 4 Alternatives. This section summarizes the existing conditions within the study area as well as adjacent natural areas that connect with the study area.

3.7.1 Methodology

This review of biological resources is based from existing information and field studies. A brief summary of the resources used for this analysis and special studies completed is presented below. Nomenclature used throughout this section follows the Jepson Manual for plants (Hickman 1993), O'Leary et al. (2001) for vegetation, Glassberg (2001) for butterflies, Eriksen and Belk (1999) for fairy shrimp, Jennings (1983) for reptiles and amphibians, American Ornithologists' Union (1983, 1996) for birds, and Jones et al. (1992) for mammals.

There are several long-term biological studies being conducted on MCAS Miramar for various biological resources, including several rare plants, herpetofauna, and other fauna. Data from these studies have been incorporated into geographic information system (GIS) coverages and the INRMP (MCAS Miramar 2006). The INRMP shows the interrelationships between individual components of natural resources management (e.g., vegetation, wetlands, fish, and wildlife), mission requirements, and other land use activities affecting MCAS Miramar's natural resources. The INRMP integrates current and future land use activities at MCAS Miramar with natural resources management and conservation. The INRMP was developed in cooperation with the USFWS and CDFG. This cooperation ensured and reflected mutual agreement that the INRMP complies with the requirements of the Endangered Species Act (ESA) established in the Biological Opinion for the Realignment of Naval Air Station Miramar to MCAS Miramar and the Sikes Act Improvement Act of 1997.

The INRMP contains the baseline information that supports compliance with regulatory and planning processes, such as those required by the NEPA, ESA, and CWA. The INRMP is intended to be a technical document to be used by persons planning and/or preparing MCAS Miramar approvals, management actions, orders, instructions, guidelines, standard operating procedures, and other plans. The INRMP provides technical guidance for the integration of natural resource issues and concerns into facilities and operational planning in accordance with the NEPA decision-making processes.

GIS coverages for biological resources, in particular CAGN survey data from 1997-2001 and 2004 (Hunsaker et al. 2000; Hubbs-Sea World Research Institute in prep.; Bitterroot Restoration 2005); data for the willow monardella (Rebman and Dossey 2006), general vegetation (O'Leary et al. 2001) modified by EDAW (EDAW 2005a), and vernal pool watersheds; as well as data contained within the INRMP were reviewed, and information relevant to the Proposed Action is included within this report.

The CDFG California Natural Diversity Database (CNDDDB) was another resource utilized. The CNDDDB provides regional sensitive resource inventories for vegetation, plant species, and wildlife species within the vicinity of the Proposed Action. GIS layers displaying biological resources for MCAS Miramar provided by MCAS Miramar were also used to provide sensitive biological resource information. Additionally, the *Fort Rosecrans National Cemetery Annex Land Use Agreement Siting Study* (EDAW 2005b) prepared for the preliminary stages of the Proposed Action was also reviewed.

Field studies included a verification of existing information on vegetation communities within Sites 2 and 4 and were completed by an EDAW senior biologist during the summer of 2005 (EDAW 2005a). Using the existing data layers for vegetation and sensitive species, a map was prepared by EDAW for use in the field assessments. Field assessments consisted of multiple visits within the project areas to walk the entire area of both sites. Some of the surrounding native habitat adjacent to the sites was also surveyed. In the field, maps were used to evaluate the existing vegetation for both sites, and any changes in the type or extent of each vegetation area were noted on maps. These field data were then modified digitally and placed in a GIS layer.

Additional field studies completed for the Proposed Action include surveys for vernal pools, vernal pool plant species, fairy shrimp cyst sampling, and fairy shrimp wet season surveys. In the spring of 2005, surveys for mapping vernal pool basins and inventory surveys of vernal pool plants were completed for Sites 2 and 4 (Ecological Restoration Service 2006a) (Figures 3.7-1 and 3.7-2, Map Pockets 1 and 2). Vernal pool basins, including man-made depressions with no indication of a naturally occurring basin (i.e., impoundments, ditches, and road ruts), were surveyed for vernal pool plant species and fairy shrimp. Surveys were conducted by Ecological Restoration Service biologists, and a detailed description of the survey conditions and areas surveyed is included within the Ecological Restoration Service vernal pool plants, listed vernal pool plants, fairy shrimp cysts, and fairy shrimp wet season survey reports (Ecological Restoration Service 2006a, b, c, and d).

At this time, no field surveys for other wildlife species have been conducted, and information on general wildlife and sensitive wildlife species provided within this document is based on the existing resources discussed in the preceding text.

3.7.2 Botanical Resources

Flora

MCAS Miramar provides habitat for numerous native plant species and natural vegetation communities. A total of 416 native and non-native plants are known to occur on MCAS Miramar, and of these 297 are native species (MCAS Miramar 2006). The more common species are listed in the vegetation description below.

Vegetation

Although both Sites 2 and 4 had changes to the delineated boundaries of some of the vegetation classes (and therefore changes to the acreages), no new classes were mapped for either site. Thus, the list of vegetation classes found at each site remained the same (Table 3.7-1).

Table 3.7-1 indicates the acreages mapped for each vegetation class by O'Leary et al. (2001) and EDAW in 2005. Description of the vegetation and land cover classes, and a discussion of the changes for each class are included in the following section.

Vegetation and Cover Classes Mapped at Both Sites

A total of 21 vegetation and land cover classes were mapped at Site 2 and Site 4 as part of O'Leary's surveys of MCAS Miramar (Table 3.7-1). In past surveys, Site 2 was mapped with 18 of these classes (Figure 3.7-3), while Site 4 had a total of 12 classes (Figure 3.7-4). As mentioned above, EDAW's verification of these mapped classes did not add any additional classes to the list developed during O'Leary's past vegetation and land cover assessment. The following descriptions include a discussion of the changes that were made to some of the land cover classes. These changes were restricted to alterations in the mapped areas for each land cover, and not in the summary of land cover classes. Changes in the land cover polygons resulted in either an increased or reduced area of vegetation types. No modifications to the land cover descriptions were made by EDAW, so all descriptions follow O'Leary et al. (2001).

**Table 3.7-1
Summary of Vegetation Classes and Acreages for Site 2 and Site 4**

Vegetation and Cover Classes	Map Code	Site 2 acreage (O'Leary et al. 2001)	Site 2 acreage (EDAW 2005a)	Site 4 acreage (O'Leary et al. 2001)	Site 4 acreage (EDAW 2005a)
Diegan coastal sage scrub	DCSS	9.8	9.8	0	0
Disturbed Diegan coastal sage scrub	DCSS-d	34.4	35.3	21.4	22.9
Burned disturbed Diegan coastal sage scrub	DCSS-db	2.5	4.0	0	0
Chamise chaparral	ChCh	64.5	63.9	3.5	3.5
Disturbed chamise chaparral	ChCh-d	47.6	47.6	37.6	42.2
Burned disturbed chamise chaparral	ChCh-db	4.2	4.2	0	0
Sage scrub-chaparral	SSC	1.2	1.2	2.2	2.2
Disturbed sage scrub-chaparral	SSC-d	1.2	1.2	0	0
Southern mixed chaparral	SMC	37.2	37.2	0	0
Disturbed southern mixed chaparral	SMC-d	1.9	1.9	1.1	1.1
Scrub oak chaparral	SOC	14.8	14.8	0	0
Disturbed non-native/native grassland	NNG/N-d	20.7	22.7	0	0
Non-native grassland	NNG	8.7	8.7	8.6	7.9
Disturbed non-native grassland	NNG-d	8.4	8.4	45.3	43.8
Disturbed mule fat scrub	MFS-d	0.5	0.5	0	0
Disturbed southern willow scrub	SWS-d	0.7	0.7	0	0
Coastal and valley freshwater marsh	CVFWM	0	0	0.5	0.5
Vernal marsh	VM	0	0	1.2	1.0
Disturbed vernal marsh	VM-d	0	0	1.0	1.0
Disturbed habitat	DH	63.4	59.7	99.0	95.3
Developed	DEV	0.8	0.8	57.3	57.3
Totals		322.5	322.5	278.7	278.7

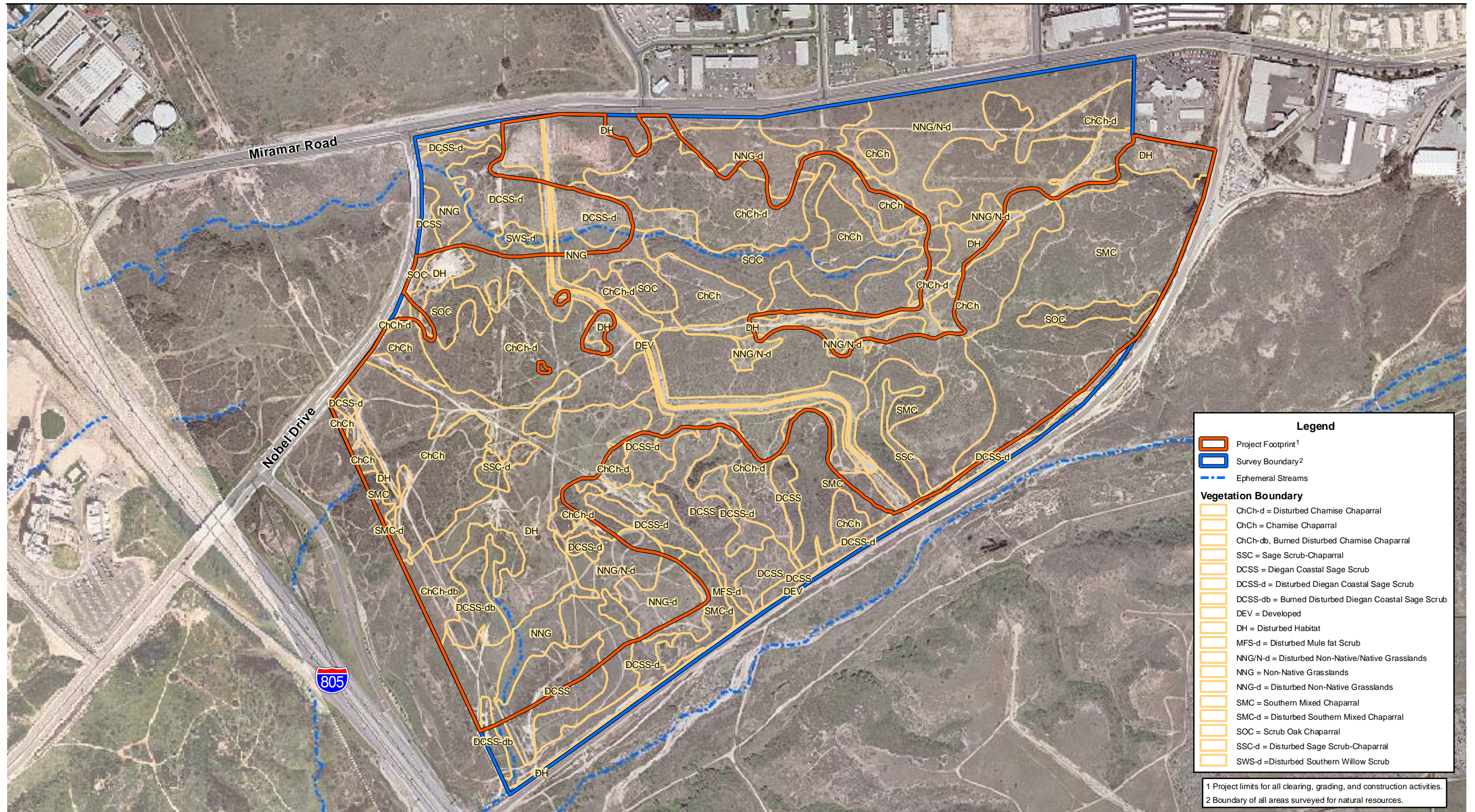
Bolded acreages are those that were modified by EDAW in 2005.

Diegan Coastal Sage Scrub (DCSS)

Diegan coastal sage scrub has greater than 50 percent ground cover of low, soft-woody subshrubs, such as coastal sage brush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), coast monkey flower (*Mimulus aurantiacus*), laurel sumac (*Malosma laurina*), and lemonade berry (*Rhus integrifolia*).

These areas lack significant cover of bare ground or a developed herbaceous layer. Dry wash areas tend to contain most of the above species, with substantial cover of broom baccharis (*Baccharis sarothroides*).

The acreages for Diegan coastal sage scrub did not change for either Site 2 or Site 4 (Table 3.7-1), since no changes were made to the boundary of this class.



Source: MCAS Miramar 2004; Eagle Aerial 2004



Figure 3.7-3
Site 2 Alternative Vegetation Communities

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Source: MCAS Miramar 2004; Eagle Aerial 2004

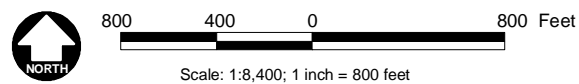


Figure 3.7-4
Site 4 Alternative Vegetation Communities

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Disturbed Diegan Coastal Sage Scrub (DCSS-d and DCSS-db)

Approximately 20 percent to 50 percent of the ground cover consists of low, soft-woody subshrubs (see above) along with indications of disturbance present in the form of significant percentage cover of bare ground and/or non-native herbs such as wild oats (*Avena* spp.), bromes (*Bromus* spp.), common tarplant (*Hemizonia fasciculata*), and filaree species (*Erodium* spp.). Areas that have burned but meet the above criteria were mapped as burned disturbed Diegan coastal sage scrub (DCSS-db).

The acreages for disturbed Diegan coastal sage scrub were modified for Site 2 (+0.9 acre [0.4 hectare]) and Site 4 (+1.5 acres [0.6 hectare]). The acreages for burned disturbed Diegan coastal sage scrub were modified for Site 2 (+1.5 acres [0.6 hectare]).

Chamise Chaparral (ChCh)

The vegetation has greater than 70 percent ground cover attributable to evergreen sclerophyllous shrubs and drought-deciduous malacophyllous subshrubs with chamise (*Adenostoma fasciculatum*) contributing greater than 50 percent of the cover. These areas often lack significant cover of disturbance specialists or bare ground.

The acreages for chamise chaparral were modified for Site 2 (–0.6 acre [0.2 hectare]), but not Site 4.

Disturbed Chamise Chaparral (ChCh-d and ChCh-db)

These areas have from 50 percent to 70 percent ground cover attributable to evergreen sclerophyllous shrub species and drought-deciduous malacophyllous subshrubs, with chamise contributing greater than 50 percent of the cover. These areas often lack significant cover of disturbance specialist or bare ground. Areas that have burned but meet the above criteria were mapped as burned disturbed chamise chaparral.

The acreages for disturbed chamise chaparral were modified for Site 4 (+4.6 acres [1.9 hectares]), but not Site 2, and the acreages for burned disturbed chamise chaparral were not changed for either site.

Sage Scrub Chaparral (SSC)

This vegetation class has greater than 70 percent ground cover attributable to evergreen sclerophyllous chaparral species and drought-deciduous malacophyllous sage scrub species (40 percent or greater relative cover of coastal sage scrub species or 60 percent or greater cover of chaparral species).

The acreages for sage scrub chaparral did not change for either Site 2 or Site 4.

Disturbed Sage Scrub Chaparral (SSC-d)

This vegetation class has from 30 percent to 70 percent ground cover attributable to evergreen sclerophyllous chaparral species and drought-deciduous malacophyllous sage scrub species (40 percent or greater relative cover of coastal sage scrub species or 60 percent or greater cover of chaparral species). Disturbance is indicated by a significant amount of bare ground and/or coverage by disturbance-specialty species such as yerba santa (*Eriodictyon crassifolium*), wild oats, bromes, filaree, and tarplant species.

The acreages for disturbed sage scrub chaparral did not change for either Site 2 or Site 4.

Southern Mixed Chaparral (SMC)

This vegetation class has greater than 70 percent ground cover attributable to evergreen sclerophyllous chaparral species and drought-deciduous malacophyllous sage scrub species (evergreen sclerophyllous shrubs constitute more than 60 percent of the relative cover), with no single species contributing greater than 50 percent of the cover.

The acreages for southern mixed chaparral did not change for either Site 2 or Site 4.

Disturbed Southern Mixed Chaparral (SMC-d)

This vegetation class has from 30 percent to 70 percent ground cover attributable to evergreen sclerophyllous chaparral species and drought-deciduous malacophyllous sage scrub species (less than 40 percent cover of coastal sage scrub species or less than 60 percent cover of chaparral species). Disturbance is indicated by a significant amount of bare ground and/or coverage by disturbance-specialty species (e.g., yerba santa, brome grasses, etc.).

The acreages for disturbed southern mixed chaparral did not change for either Site 2 or Site 4.

Scrub Oak Chaparral (SOC)

This class has greater than 70 percent ground cover attributable to evergreen sclerophyllous chaparral species and drought-deciduous malacophyllous sage scrub species (evergreen sclerophyllous shrubs constitute more than 60 percent of the relative cover), with scrub oak (*Quercus dumosa*) contributing greater than 50 percent of the cover.

The acreages for scrub oak chaparral did not change for either Site 2 or Site 4.

Disturbed Non-Native/Native Grassland (NNG/N-d)

These vegetation areas have from 20 percent to 40 percent ground cover of grasses and forbs, with greater than 66 percent relative overall ground cover attributable to native and non-native grasses (no less than 33 percent relative cover for native bunch grasses (*Nasella* spp.) or no more than 66 percent relative cover of non-native grasses (brome, wild oats, etc.). Evidence exists that recent mechanical disturbance may have occurred, and areas of significant amounts of bare ground are present.

The acreages for disturbed non-native/native grassland were modified for Site 2 (+2.0 acres [0.8 hectare]), but not Site 4.

Non-Native Grassland (NNG)

This vegetation class has greater than 40 percent cover of grasses and forbs, with greater than 66 percent cover attributable to non-native annual grasses. Characteristic species include wild oats and brome grasses, but native bunch grasses may be mixed in at low covers.

The acreages for non-native grassland were modified for Site 4 (−0.7 acre [0.3 hectare]), but not Site 2.

Disturbed Non-Native Grassland (NNG-d)

This vegetation class is characterized by 20 percent to 40 percent cover of grasses and forbs, of which greater than 66 percent cover is attributable to non-native annual grasses. Significant

amounts of bare ground are often present, as well as evidence of recent mechanical disturbances such as tilling or mowing.

The acreages for disturbed non-native grassland were modified for Site 4 (-1.5 acres [0.6 hectare]), but not for Site 2.

Disturbed Mule Fat Scrub (MFS-d)

This class is characterized by a tall, herbaceous, and open (20 percent to 50 percent total cover) riparian scrub that is strongly dominated by mule fat (*Baccharis salicifolia*). This community is maintained by frequent flooding and occurs on intermittent stream channels with fairly coarse substrate and moderate depth to the water table. Evidence exists of past mechanical disturbance and/or significant invasion by non-native species such as giant reed (*Arundo donax*), salt cedar (*Tamarix* spp.), eucalyptus (*Eucalyptus* spp.), and pampas grass (*Cortaderia* spp.).

The acreage for disturbed mule fat scrub was not modified for either Site 2 or Site 4.

Disturbed Southern Willow Scrub (SWS-d)

This vegetation class is characterized by low-density (from 30 percent to 60 percent cover), broadleaved, winter-deciduous riparian thickets, which are dominated by several species of willow (*Salix* spp.), that average less than 20 feet (6 meters) in height. Evidence exists of past mechanical disturbance, and significant invasion by non-native species is common (e.g., giant reed, pampas grass, salt cedar, etc.).

The acreages for disturbed southern willow scrub were not modified for either Site 2 or Site 4.

Coastal and Valley Freshwater Marsh (CVFWM)

This vegetation class is dominated by perennial, emergent monocots such as cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), and species of smart weed (*Persicaria* spp.) and dock (*Rumex* spp.). This vegetation occurs on sites lacking significant aboveground water flow but which are permanently flooded.

The acreages for coastal and valley freshwater marsh scrub were not modified for either Site 2 or Site 4.

Vernal Marsh (VM and VM-d)

The acreages for disturbed vernal marsh were not modified for either site. This class is strongly dominated by toad rush (*Juncus bufonius*), with lesser amounts of assorted forbs and graminoids such as grass poly (*Lythrum hyssopifolium*), pale spikerush (*Eleocharis macrostachya*), and alkali mallow (*Malvella leprosa*). This habitat is subject to seasonal flooding and drying.

The area of vernal marsh added to the very southwest corner of Site 4 (see Figure 3.7-4) appears to once have been contiguous with the large vernal marsh/pool on the west side of SR 163, just to the west. This vernal marsh habitat appears to have been cut in half by the highway. Currently, the portion on the west side of SR 163 is mapped as non-native grassland, but this should be changed to vernal marsh to better reflect the nature of the habitat. Since the area west of SR 163 was not part of this project area, changes to the vegetation mapping are not included.

Areas mapped as disturbed vernal marsh have the species discussed above but are subject to obvious mechanical disturbance and invasion of non-native wetland weed species.

The acreages for vernal marsh vegetation were modified for Site 4 (-0.2 acre [0.08 hectare]), but not Site 2.

Disturbed Habitat (DH)

This habitat is characterized by prevalent past or present physical disturbances. Vegetation is typically composed of a mixture of grasses and forbs with grass contributing less than 66 percent relative cover, and with non-native forbs like filaree, cat's tail (*Hypochaeris glabra*), fennel (*Foeniculum vulgare*), and Russian thistle (*Salsola kali*). Native shrub/subshrub species (e.g., flat-top buckwheat, broom baccharis, yerba santa, etc.) and non-native shrubs like castor bean (*Ricinus communis*) may be mixed in. Substantial amounts of bare ground may exist.

Acreages for disturbed habitat were modified for both Site 2 (-3.7 acres [1.5 hectares]) and Site 4 (-3.7 acres [1.5 hectares]).

Developed (DEV)

This habitat has little or no habitat value and is usually characterized by maintained exotic landscapes, buildings, pavement, exposed bedrock, or recently graded surfaces.

Acreages for developed habitat were not modified for either Site 2 or Site 4.

Vernal Pool Habitat

Vernal pools are not included within *Vegetation and Land Cover Types, Naval Air Station Miramar* (O’Leary et al. 2001) because vernal pools are considered a habitat type and not a vegetation type. Vernal pools are wetlands with a unique assemblage of plants and animals within them. Vernal pools are a series of microdepressions that are sometimes surrounded by small hummocks called mima mounds. The depressions collect water from precipitation and runoff from the mima mounds. A subsoil hardpan or claypan is also present that prevents the draining of water from these pools through downward percolation. Because of their ephemeral nature, vernal pools support an unusual assortment of flora and fauna. The vernal pool indicator species observed within the vernal pools on-site include San Diego mesa mint (*Pogogyne abramsii*), San Diego button-celery (*Eryngium aristulatum* sp. *parishii*), Orcutt’s brodiaea (*Brodiaea orcuttii*), water starwort (*Callitriche marginata*), pygmy crassula (*Crassula aquatica*), wooly marbles (*Psilocarphus brevissimus*), annual hairgrass (*Deschampsia danthonioides*), and vernal pool plantain (*Plantago elongata*) (ACOE 1997). Other plant species observed in the vernal pools include wooly heads (*Psilocarphus tenellus*), grass-poly (*Lythrum hyssopifolium*), and toad rush (*Juncus bufonius*). The wooly heads is a facultative species. The grass-poly and toad rush are facultative wetland species (Reed 1998).

As mentioned in Section 3.7.1, vernal pool surveys were conducted by Ecological Restoration Service (Ecological Restoration Service 2006a), but a summary of the vernal pool habitat found is included here as part of the vegetation land cover assessment. Figures 3.7-1 and 3.7-2 show the vernal pools that were mapped. Discussion of the sensitive species found in these pools is not included here. The type of vernal pool basin (natural, road rut, etc.) is also not discussed here but is shown in both Figures 3.7-1 and 3.7-2.

A total of 634 basins were found at Site 2, comprising 4.44 acres (1.80 hectares). These basins ranged in size from 1.2 to 5,072 square feet (0.11 to 471 square meters) in area, with a mean area of 305 square feet (28 square meters) (Ecological Restoration Service 2006a). Most of the basins were in the northeast corner of the survey area, and these basins tended to be less disturbed. Basins in the western portion of the survey area were more disturbed by ruts and road activity.

A total of 492 basins were found at Site 4, comprising 6.65 acres (2.69 hectares). These basins ranged in size from 0.2 to 16,270 square feet (0.01 to 1,511 square meters) in area, with a mean area of 589 square feet (55 square meters) (Ecological Restoration Service 2006a). The basins in

the area west of Kearny Villa Road are relatively undisturbed, while those east of Kearny Villa Road are more disturbed by roads and other factors (Ecological Restoration Service 2006a).

3.7.3 Zoological Resources

Wildlife

The diversity of vegetation communities throughout MCAS Miramar provides habitat for a wide variety of wildlife species. Approximately 7 amphibian species, 30 reptile species, and 40 mammal species have been recorded during surveys on MCAS Miramar. Additionally, over 200 species of birds have been detected on MCAS Miramar.

Amphibians

Riparian, wetland, and open water areas on MCAS Miramar provide aquatic habitats to several amphibian species. Species that have been detected in these communities and may occur within wetland and marsh habitats on Sites 2 and 4 include native species such as the garden slender salamander (*Batrachoceps pacificus major*) and arboreal salamander (*Aneides lugubris*), two species that are also known from chaparral and oak habitats in this region of the county. Both of these salamanders would be active on the surface during winter rainy periods. Another species that may be present on Sites 2 and 4 is the Pacific chorus frog (*Psuedacris regilla*), a common species that frequently breeds in shallow temporary pools, such as vernal pools and quiet water in creek beds. Another amphibian that is representative of wet habitats and may occur on either site is the western spadefoot toad (*Spea hammondi*). An amphibian expected to occur within drainages on both sites is the California toad (*Bufo boreas halophilus*). Non-native species known to occur within MCAS Miramar and may occur on Sites 2 and 4 include the African clawed frog (*Xenopus laevis*) and bullfrog (*Rana catesbeiana*).

Reptiles

A wide variety of reptiles are known for MCAS Miramar. Species that have previously been detected on and which may occur on Sites 2 and 4 include generalists found in a wide variety of habitats such as the western fence lizard (*Sceloporus occidentalis*), San Diego gopher snake (*Pituophis melanoleucus annectens*), and western rattlesnake (*Crotalus viridis*). Other lizard species detected that occur in grassland, coastal sage scrub, chaparral, and disturbed habitats include San Diego coast horned lizard (*Phrynosoma coronatum blainvilli*) and granite spiny lizard (*Sceloporus orcutti*). Snake species associated with dry terrestrial habitats include

California kingsnake (*Lampropeltis getula californiae*), California striped racer (*Masticophis lateralis lateralis*), and red-diamond rattlesnake (*Crotalus ruber ruber*). During dryer than average climatic conditions, these species may also be found within riparian corridors.

Other reptile species known to occur on MCAS Miramar that may occur on either Site 2 or Site 4 have slightly more specific habitat requirements, such as the western blind snake (*Leptotyphlops humilis*), which requires loose, sandy soil for burrowing, and the San Diego ringneck snake (*Diadophis punctuatus similis*) and Hammond's two-striped garter snake (*Thamnophis hammondi hammondi*), which are associated with wet habitats. Two other aquatic-associated reptile species that have been recorded on MCAS Miramar that may occur in freshwater marsh habitat on Site 4 include the southwestern pond turtle (*Clemmys marmorata pallida*) (unconfirmed report) and the non-native northern red-eared slider (*Trachemys scripta elegans*.)

Birds

Numerous migratory bird species and resident San Diego County species have been recorded on MCAS Miramar and may also utilize a variety of habitats on Sites 2 and 4 as common residents or for breeding or migratory stopovers.

Generalist avian species widely distributed and common throughout MCAS Miramar include birds such as the turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), and Bewick's wren (*Thryomanes bewickii*). Generalist wintering species found on MCAS Miramar include the white-crowned sparrow (*Zonotrichia leucophrys*) and yellow-rumped warbler (*Dendroica coronata*).

Birds associated with coastal sage scrub and chaparral habitats on MCAS Miramar include the California towhee (*Polioptila crissalis*), California quail (*Callipepla californica*), greater roadrunner (*Geococcyx californianus*), and wrentit (*Chamaea fasciata*). Mature chaparral on-site supports a variety of species, including birds such as the blue-gray gnatcatcher (*Polioptila caerulea*), northern mockingbird (*Mimus polyglottos*), sage thrasher (*Oreosptes montanus*), and California thrasher (*Toxostoma redivivum*). Migratory species that have been detected within these habitats include Allen's hummingbird (*Selasphorus sasin*), Say's phoebe (*Sayornis saya*), and hermit thrush (*Catharus guttatus*). Additionally, raptors such as the golden eagle (*Aquila chrysaetos*), may forage in scrub, chaparral, and grassland habitats on Sites 2 and 4.

Riparian species associated primarily with freshwater marsh and riparian scrub habitats recorded for MCAS Miramar include several species of woodpeckers, oak titmouse (*Baeolophus*

inornatus), bushtit (*Psaltriparus minimus*), common yellowthroat (*Geothlypis trichas*), and red-winged blackbird (*Agelaius phoeniceus*). Additionally, several shorebirds including waterfowl, herons, and pelicans have been detected on MCAS Miramar and may occur within the limited freshwater marsh habitat found on Site 2. Migratory songbird species also found within this habitat include Lawrence's goldfinch (*Carduelis lawrencei*), American goldfinch (*C. tristis*), ruby-crowned kinglet (*Regulus calendula*), northern rough-winged swallow (*Stelgidopteryx serripennis*), and yellow warbler (*Dendroica petechia*). While riparian habitat is limited on Sites 2 and 4, these species may occur on uplands or limited riparian areas on either site, perching, passing through, or foraging.

Other species associated primarily with oak woodlands, a habitat type that does not occur on Site 2 or Site 4, may use either site for perching, foraging, or as a migratory stopover. These species detected include the house wren (*Troglodytes aedon*), western bluebird (*Sialia mexicana*), and Cassin's kingbird (*Tyrannis vociferans*). Migratory species include Swainson's thrush (*Catharus ustulatus*), hooded oriole (*Icterus cucullatus*), and cedar waxwing (*Bombycilla cedrorum*). While nesting habitat for most raptors is not present within Site 2 or Site 4, perching and foraging habitat for raptors such as the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-shouldered hawk (*Buteo lineatus*), and Cooper's hawk (*Accipiter cooperii*) does occur on both sites. Owl species detected on MCAS Miramar, which may also forage or perch on either Site 2 or Site 4, include the barn owl (*Tyto alba*) and western screech owl (*Otus kennicottii*).

Grassland avian specialists that may occur on either site include the western meadowlark (*Sturnella neglecta*) and grasshopper sparrow (*Ammodramus savannarum*). Grassland is also used as foraging habitat by a variety of raptors, particularly the white-tailed kite, northern harrier (*Circus cyaneus*), and red-tailed hawk (*Buteo jamaicensis*). The northern harrier is known to also nest within grassland habitats.

In addition to the numerous native bird species observed on MCAS Miramar, three non-native species also occur and may be found on either site. Two non-native species tied to the urban landscape are the rock dove (*Columbia livia*) and European starling (*Sternus vulgaris*), purposefully introduced by Europeans over 100 years ago. Although associated with the urban landscape, the European starling has ventured beyond into natural habitat and competes with native birds for nest cavities. Lastly, the brown-headed cowbird (*Molothrus ater*) is a brood parasite that has migrated to the west coast from its original distribution in the Great Plains. It is attracted to seeds, larvae, and insects associated with manure of horses and livestock. This species does not build its own nests but rather lays its eggs in the nests of native birds, who then

feed and care for the young. Eggs and young of the native species that are already in the nest are usually pushed out.

Mammals

Open space areas and the diverse vegetative communities provide habitat and movement corridors for various mammal species on MCAS Miramar. Species recorded on MCAS Miramar that may occur on either site include bats, insectivores, rabbits, rodents, carnivores, and ungulate species.

A diversity of bat species have been recorded for MCAS Miramar, including 7 of the 16 species commonly found in San Diego County. These bats roost and forage in a wide diversity of habitats, depending upon species-specific requirements. Habitat generalists that utilize many habitats include the Mexican free-tailed bat (*Tadarida brasiliensis*), pocketed free-tailed bat (*Nyctinomops femorosacca*), and big brown bat (*Eptesicus fuscus*). Bat species known to forage within riparian areas include the Yuma myotis (*Myotis yumanensis sociabilis*) and western red bat (*Lasiurus blossevillii*). Foraging activities of other recorded species, namely the western mastiff (*Eumops perotis*) and western pipistrelle (*Pipistrellus hesperus*), occur within dryer terrestrial habitats, such as desert, chaparral, oak woodland, scrub, and grassland.

Other mammal species, that may occur on Site 2 or Site 4 are common residents of chaparral, coastal sage scrub, and/or grassland habitat. Species found within these habitats include the black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), and Dulzura kangaroo rat (*Dipodomys simulans*). Other small mammals identified on-site include several species of mice and voles including desert woodrat (*Neotoma lepida intermedia*) and dusky-footed woodrat (*N. fuscipes macrotus*), and two species of shrew (*Notiosorex crawfordi crawfordi* and *Sorex ornatus*). Two non-native small mammal species identified on MCAS Miramar are the house mouse (*Mus musculus*) and the black rat (*Rattus rattus*).

The small mammal assemblage and mule deer (*Odocoileus hemionus*) that are present on MCAS Miramar provide a solid prey base for the medium to large carnivores. The most common predators found that may occur on Site 2 or Site 4 are the coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and bobcat (*Lynx rufus*). Although species such as the long-tailed weasel (*Mustela frenata*) and striped skunk (*Mephitis mephitis*) also eat small mammals, they have a more diverse diet preference and will scavenge for invertebrates, frogs, lizards, birds, eggs, acorns, and fruit. The ringtail (*Bassariscus astutus*) is another opportunistic species known to occur on MCAS Miramar.

3.7.4 Regulatory Setting

Endangered Species Act

The ESA of 1973 was enacted with the purpose of conserving ecosystems upon which endangered and threatened species depend, and to provide a program for the conservation and recovery of such species. The conservation measures employed to protect listed species under the ESA have often been based on preservation or enhancement of ecosystems that support threatened and endangered species. Conservation measures include the use of all methods and procedures that are necessary to bring an endangered species or a threatened species to the point at which listing under the ESA is no longer necessary. There are several pertinent sections of the ESA that pertain to requirements of federal project proponents (Section 7) and prohibited acts (Section 9).

Section 7 of the ESA covers the process by which federal agencies consult with the U.S. Department of the Interior to conserve and protect threatened and endangered species listed pursuant to Section 4. The consultation is to ensure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitat of such species. The determination of the potential effects of the federal action is to be based on the best scientific and commercial data available.

It is unlawful to “take” a threatened or endangered species, as addressed under Section 9 of the ESA. Violations of the ESA can result in both civil and criminal penalties.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is the primary legislation in the United States established to conserve migratory birds (16 U.S.C. 703-711). It implements U.S. commitment to four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The MBTA prohibits the taking, killing, or possessing of migratory birds unless permitted by regulation. The species of birds protected by the MBTA appear in Title 50, Section 10.13, of the Code of Federal Regulations (50 CFR § 10.13). The MBTA protects all common wild birds found in the United States except the house sparrow, starling, feral pigeon, and resident game birds such as pheasant, grouse, California quail, and wild turkeys. Resident game birds are managed separately by each state. A reference list of migratory game birds is found in Title 50, Code of Federal Regulations, Section 10. The MBTA makes it unlawful for anyone to kill,

capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird including feathers, parts, nests, or eggs.

On January 11, 2001, an Executive Order on the *Responsibilities of Federal Agencies to Protect Migratory Birds* was issued that directs federal agencies, which take actions that have, or are likely to have, a measurable effect on migratory bird populations, to incorporate migratory bird conservation into their agency activities.

On December 2, 2003, the President signed the 2003 National Defense Authorization Act. The Act provides that the Secretary of the Interior shall exercise authority under the MBTA to prescribe regulations to exempt the Armed Forces for the incidental taking of migratory birds during military readiness activities authorized by the Secretary of Defense. The regulations must have concurrence of the Secretary of Defense.

Clean Water Act

Activities within wetlands and other navigable waters of the United States are regulated under Section 404 of the CWA. Pursuant to Section 404 of the CWA, ACOE regulates activities that result in the discharge of dredged or fill material into waters of the United States. Waters of the United States are defined in the Code of Federal Regulation (33 CFR Part 328) as (1) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including such waters: (i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) which are used or could be used for industrial purposes by industries in interstate commerce; (4) all impoundments of waters otherwise defined as waters of the United States under the definition; (5) tributaries of waters identified in paragraphs (1) through (4) of this section; (6) the territorial seas; and (7) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this section of the Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]).

ACOE (*Federal Register* 1982) and the USEPA (*Federal Register* 1980) jointly define wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and

duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3[b]; 40 CFR 230.3[t]).”

In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, such as rivers, streams, lakes, and ponds, extends to the ordinary high water mark, which is defined as “that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR 328.3[e]).”

Natural Community Conservation Planning

A discussion of the NCCP regulatory process is provided in Section 3.1.3. As discussed in Section 3.1.3, the Site 2 and 4 Alternatives occur entirely within the boundaries of MCAS Miramar and do not occur within any NCCP planning areas. However, Site 2 occurs adjacent to a Multiple Habitat Planning Area of the City of San Diego, which is an MSCP subarea under the NCCP. Although MCAS Miramar is a military installation that is not a participant within any NCCP jurisdictional planning areas, the MCAS Miramar INRMP was prepared in compliance with the Biological Opinion (1-6-95-F-33) and Section 404 Permit number 95-20158-ES for the Realignment of Naval Air Station Miramar to MCAS Miramar, and the Sikes Improvement Act of 1997. Thus, the INRMP is consistent with the guidelines provided in the City of San Diego subarea plan under the MSCP. Additionally, project design and mitigation measures require compliance with the Land Use Agency Guidelines (Section 1.4.3) of the City of San Diego subarea plan.

3.7.5 Sensitive Biological Resources

Sensitive Habitats

Sensitive habitats are defined as habitats that are either (1) wetlands and waters of the United States that are under the jurisdiction of ACOE pursuant to Section 404 of the CWA; (2) habitats such as vernal pools, Diegan coastal sage scrub and native grasslands that are declining regionally and locally, and support a high number of sensitive species; and (3) important regional and local wildlife movement corridors. In some instances, certain habitats such as vernal pools or Diegan coastal sage scrub may be sensitive because they qualify for more than one of the

above-stated criteria. No proposed or designated critical habitat for any species exists on MCAS Miramar.

ACOE Jurisdictional Wetlands and Waters of the United States

Although a formal delineation of jurisdictional waters and wetlands was not done as part of this study, an assessment for waters of the United States was completed while mapping the vegetation at both sites. Based on the vegetation, as well as evidence of aboveground flow patterns (drainage scouring, salt deposits, etc.), both sites were assessed for the potential for additional ephemeral streambeds (blue line streams) not currently documented from the study areas.

Several of the resources within the study area are currently classified as waters of the United States under the jurisdiction of the ACOE under the CWA, Section 404, some of which were already documented from both study areas.

At Site 2, two drainages are currently considered ephemeral streambeds and would also be considered waters of the United States (Figure 3.7-3). EDAW biologists also mapped three additional drainage courses as ephemeral streambeds based on vegetation and other evidence of water flow. Following any wetland delineations, these three additional drainage systems would most likely be considered jurisdictional waters and would require some permitting actions with the ACOE. The potential linear and acreage impacts to these ephemeral drainages may be considered more than minimal. It is anticipated that the project's impacts to federal waters and wetlands would require an Individual Permit under the Clean Water Act. In addition, the submittal of a 401 permit application for construction of the Proposed Project to the Regional Water Quality Control Board would be necessary.

The study area for Site 4 has portions of two ephemeral streambeds running through it, as currently delineated; EDAW biologists added an additional drainage as an ephemeral streambed, which would be considered as waters of the United States (Figure 3.7-4). Following any wetland delineations, this additional drainage system would most likely be considered jurisdictional waters and would require some permitting actions with the ACOE.

Vernal pools: Vernal pools are considered seasonal wetlands that support specialized hydrophytic vegetation and/or aquatic fauna and may also be classified as jurisdictional wetlands as defined by ACOE and USEPA. Vernal pools are regulated by ACOE under Section 404 of

the CWA only if they are adjacent (hydrologically connected) to waters of the United States. A jurisdictional determination was not conducted for the vernal pools at either alternative.

Regionally and Locally Declining Habitats

Diegan coastal sage scrub, native grasslands, mule fat scrub, freshwater marsh, vernal marsh, and vernal pools are all considered sensitive habitats because of their restricted distribution, recent losses due to development and habitat conversion, and because they typically support a high assemblage of sensitive species.

Diegan Coastal Sage Scrub: Coastal sage scrub is thought to be one of the most endangered vegetation types in California. Oberbauer and Vanderwier (1991) estimate that only about 130,000 acres (52,611 hectares) of sage scrub remain in San Diego County. This represents a 69 percent loss of this community in the county from the pre-European era. These estimates were based on 1988 vegetation coverage estimates, and additional losses have accrued since. Loss of sage scrub within California is due primarily to grazing and urbanization.

Native/Non-native Grassland: Native grasslands are currently very restricted within California and San Diego County due to encroachment from development and displacement by exotic species. Many of the native grasslands in California were converted to non-native grasslands. Native grasslands have the highest ranking of rarity possible in terms of native habitat for wildlife species according to CDFG (MCAS Miramar 2006). Oberbauer and Vanderwier (1991) report that only 7,250 acres (2,934 hectares) of this community remain in San Diego County. This is a reduction of 94 percent of this community from Oberbauer and Vanderwier's pre-European estimate of less than 126,000 acres (50,922 hectares).

Mule Fat Scrub: Mule fat scrub is a declining habitat type within southern California. This habitat has not only been impacted by development, but also by non-native plant species (e.g., *Tamarix* sp.), which in some cases has all but replaced the native habitat. According to the INRMP, mule fat scrub occurs on approximately 10 acres on MCAS Miramar, typically on intermittent stream channels with coarse substrates.

Coastal and Valley Freshwater Marsh and Vernal Marsh: Freshwater marshes are permanently flooded sites, without significant water currents. These areas are dominated by perennial plants adapted to the permanent inundation. Freshwater marshes provide important wildlife habitat to many species of birds, mammals, insects, and other animals. In many cases, the marsh is often artificial in nature, having been blocked by a dyke or dam type structure. Vernal marshes are

also freshwater, but are seasonal in inundation, so the plants that live in them must be adapted to the variation in moisture available throughout the years. As with freshwater marshes, vernal marshes are dominated by perennial plant species and are often important habitat for wildlife species. Many vernal marshes have been destroyed by artificial inundation that can turn them into freshwater marsh type habitat.

Vernal Pools: Historically, vernal pool habitat in San Diego County probably covered less than 200 square miles (520 square kilometers) prior to intensive cultivation and urbanization (Bauder and McMillan 1996). Loss of historical vernal pool habitat in San Diego County was estimated at 93 percent by 1986 (Bauder 1986) and at 97 percent by 1990 (Oberbauer and Vanderwier 1991). Development and vehicular damage are the primary threats to vernal pool loss.

Special Status Species

Special status species are species that are listed by USFWS (1999) as threatened, endangered, or proposed for listing as threatened or endangered. Also included in this category are species protected by the Bald and Golden Eagle Protection Act (BAGEPA) (16 USC § 668-668d). The DON is obligated to conserve these Special Status Species under the provisions of the ESA and the BAGEPA. A list of the 7 special status species known to occur or with the potential to occur on Sites 2 and 4, and their habitat preferences, are included in Table 3.7-2. Three species of plants have been recorded for MCAS Miramar and are known to occur or have the potential to occur within either site. These are San Diego button-celery, spreading navarretia (*Navarretia fossalis*), willow monardella, and San Diego mesa mint. Two species of fairy shrimp, SDFS and Riverside fairy shrimp (*Streptocephalus woottoni*; RFS), have been recorded for MCAS Miramar; only SDFS is known to occur or has some potential to occur within either site. The federally listed CAGN, and state-listed American peregrine falcon (*Falco peregrinus anatum*), have been recorded for MCAS Miramar and are known to occur or have some potential to occur on Site 2 and Site 4. Although the federally endangered and state-endangered least Bell's vireo has also been detected on MCAS Miramar (MCAS Miramar 2006), this species is not expected to occur on Sites 2 or 4 due to the lack of suitable nesting or foraging habitat and will not be discussed further. One species known to occur on MCAS Miramar with a potential to forage on either site is the golden eagle, a state species of special concern also covered under the BAGEPA.

**Table 3.7-2
Special Status Species Known to Occur or
with the Potential to Occur within Site 2 or Site 4²**

Common Name (Scientific Name)	Sensitivity Status¹	Habitat Description	Potential to Occur within Site 2 or Site 4 Alternatives
Plants			
Del Mar manzanita (<i>Arctostaphylos glandulosa</i> var. <i>crassifolia</i>)	USFWS: Endangered CNPS: 1B	Sandy mesas and coastal bluffs in maritime chaparral in San Diego County.	Not expected to occur on either site. Sage scrub and chaparral habitats present on both sites, but surveys for this species have been conducted on both sites..
Orcutt's spineflower (<i>Chorizanthe orcuttiana</i>)	USFWS: Endangered CDFG: Endangered CNPS: 1B	Sandy soils in coastal sage scrub, chaparral, and close-coned coniferous forest habitats.	Not expected to occur on either site, as suitable habitat is minimal.
San Diego button-celery (<i>Eryngium aristulatum</i> var. <i>parishii</i>)	USFWS: Endangered CDFG: Endangered CNPS: 1B	Vernal pools and marshes in grasslands, coastal sage scrub, and chaparral vegetation.	Known to occur on both sites. Suitable vernal pool habitat is present throughout both sites.
Spreading navarretia (<i>Navarretia fossalis</i>)	USFWS: Threatened CNPS: 1B	Vernal pools within coastal sage scrub, grasslands, and chenopod scrub.	Low potential to occur on both sites as suitable vernal pool habitat is present, but habitat has been surveyed.
San Diego thornmint (<i>Acanthomintha ilicifolia</i>)	USFWS: Threatened CDFG: Endangered CNPS: 1B	Clay soils on mesas and slopes in coastal sage scrub, chaparral, and grassland habitat	Not expected to occur on either site due to the lack of the appropriate types of clay soils.
Willow monardella (<i>Monardella linoides</i> ssp. <i>viminea</i>)	USFWS: Endangered CDFG: Endangered CNPS: 1B	Rocky washes and drainages in coastal sage scrub, chaparral, close-coned coniferous forest, and riparian woodland areas.	Not expected to occur. Although both sites are close to known populations, neither site has rocky washes and both sites have been surveyed for this species.
San Diego mesa mint (<i>Pogogyne abramsii</i>)	USFWS: Endangered CDFG: Endangered CNPS: 1B	Vernal pool complexes in chaparral, coastal sage scrub, and grassland habitats.	Known to occur on both sites. Suitable vernal pool habitat is present throughout both sites.
Encinitas baccharis (<i>Baccharis vanessae</i>)	USFWS: Threatened CDFG: Endangered CNPS: 1B	Chaparral, coastal sage scrub, and Torrey Pine Forest on sandstone soils.	Not expected to occur on either site. Sage scrub and chaparral habitats present on both sites, but the soils are not sandstone.

3.0 Affected Environment

Common Name (Scientific Name)	Sensitivity Status ¹	Habitat Description	Potential to Occur within Site 2 or Site 4 Alternatives
California Orcutt grass (<i>Orcuttia californica</i>)	USFWS: Endangered CDFG: Endangered CNPS: 1B	Vernal pools in coastal sage scrub and grassland habitats.	Not expected to occur on either site, since it was not found during intensive vernal pool surveys of both sites.
Invertebrates			
SDFS (<i>Branchinecta sandiegoensis</i>)	USFWS: Endangered	Seasonally astatic vernal pools and similar habitat conditions in coastal areas within grassland, agriculture, coastal sage scrub, and chaparral habitats.	Known to occur on both sites. Suitable vernal pool habitat is present throughout both sites, and this species was detected in basins on both sites.
Riverside fairy shrimp (<i>Streptocephalus woottoni</i>)	USFWS: Endangered	Areas of tectonic swales/ earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season	Although limited, some suitable vernal pool habitat is present throughout both sites. Not expected to occur on either site due to historic documented distribution on MCAS Miramar.
Birds			
golden eagle (<i>Aquila chrystaeos</i>)	USFWS: BAGEPA CDFG: Species of Special Concern, Fully Protected	Uncommon resident that forages over grassland and broken chaparral or sage scrub. Nests on high cliffs.	Moderate potential to occur on both sites. While no nesting habitat occurs on either site, suitable foraging and perching habitat occurs on both sites.
American peregrine falcon (<i>Falco peregrinus anatum</i>)	CDFG: Endangered, Fully Protected	Open habitats from tundra, moorlands, steppe, and seacoasts to mountains, and open forested regions, especially where there are suitable nesting cliffs.	Not expected to occur on Site 2, and low potential to occur on Site 4. While no nesting habitat occurs on either site, foraging habitat occurs within Site 4, though limited.
CAGN (<i>Polioptila californica californica</i>)	USFWS: Threatened CDFG: Species of Special Concern	Diegan coastal sage scrub dominated by California sagebrush and California buckwheat below 2,500 feet (7,620 meters) elevation in Riverside County and below 1,000 feet (305 meters) elevation along the coastal slope; generally avoids steep slopes above 25 percent and dense, tall vegetation for nesting.	Known to occur on both sites. This species has been recorded for both sites, and suitable habitat is present throughout both sites.

Common Name (Scientific Name)	Sensitivity Status¹	Habitat Description	Potential to Occur within Site 2 or Site 4 Alternatives
southwestern willow flycatcher (<i>Empidonax trailli extimus</i>)	USFWS: Endangered	Dense willow, cottonwood, and tamarisk thickets and woodland along streams and rivers.	Not expected to occur on either site. Suitable dense willow and mule fat habitat for nesting and foraging does not occur at either site. Additionally, this subspecies has not been documented on MCAS Miramar.
least Bell's vireo (<i>Vireo belli pusillus</i>)	USFWS: Endangered CDFG: Endangered	Riparian woodland with understory of dense young willows or mule fat and willow canopy. Nests often placed along internal or external edges of riparian thickets.	Not expected to occur on either site. Suitable dense willow and mule fat habitat for nesting and foraging does not occur on either site and records of this species are limited to the eastern boundary of MCAS Miramar, near Sycamore Canyon Open Space Preserve.

¹ Sensitivity Status KeyFederal U.S. Fish and Wildlife Service (USFWS)State California Department of Fish and Game (CDFG)Other California Native Plant Society (CNPS)

List 1B: Plants rare, threatened, or endangered in California and elsewhere.

² Definition of Low, Moderate, and High PotentialLow Species with few known recent (i.e., last 25 years) recorded occurrences/populations nearby, but suitable habitat within the survey area is highly disturbed or extremely limited in area. Also, species with known historic (i.e., more than 25 years) recorded occurrences/populations from the site or nearby; however, the suitable habitat onsite has been severely reduced or disturbed since past documentation.Medium Species with known recent (i.e., last 25 years) recorded occurrences/populations nearby (i.e., within the same USGS quadrangle map or an adjacent quadrangle map); however, suitable habitat within the survey area is moderately disturbed. Suitable habitat for the species could be fragmented or small/limited in size. Additionally, a "moderate" assessment would be made for species for which suitable habitat occurs within the survey area, but the survey area is near the edge of the species' range or there are no reported occurrences/populations from surveys of nearby areas.High Species with known recent (i.e., last 25 years) recorded occurrences/populations nearby (i.e., within the same USGS quadrangle map or an adjacent quadrangle map) and for which highly suitable habitat occurs within the survey area. Suitable habitat includes all necessary habitat elements to support the species (habitat type, soils, cover, food resources, etc.).*Special Status Plants*

The San Diego mesa mint (SD mesa mint), San Diego button-celery (SD button-celery), spreading navarretia, and Orcutt's grass are species known to occur in vernal pool habitats. The SD mesa mint was listed as endangered by the USFWS on 28 September 1978 (43 Federal

Register 44810). Critical habitat has not been designated for this species. A draft recovery plan was issued by the USFWS in 1984 (USFWS 1984). Although this draft recovery plan was not finalized, this species was included in the 1998 recovery plan for vernal pool species in southern California (USFWS 1998). SD button-celery was listed as endangered on 3 August 1993 (58 Federal Register 41391). Critical habitat has not been designated for this species, but a recovery plan was issued by the USFWS in 1998 (USFWS 1998). Spreading navarretia was listed as threatened by the USFWS on 13 October 1998 (63 Federal Register 54975 54994). As with SD button-celery, critical habitat has not been designated for this species, but a recovery plan was issued by the USFWS in 1998 (USFWS 1998). Orcutt's grass was listed as endangered on 3 August 1998 (63 Federal Register 54975 54994). As with SD button-celery and spreading navarretia, critical habitat has not been designated for this species, but a recovery plan was issued by the USFWS in 1998 (USFWS 1998).

SD mesa mint is a small annual herb that is restricted to the vernal pool habitats of central coastal San Diego County. The northern limit of distribution for SD mesa mint is Del Mar mesa, and it occurs south on Mira Mesa, MCAS Miramar, and Kearny Mesa, with a few scattered populations in western Tierrasanta. SD mesa mint populations have been extirpated from the Linda Vista area, the vicinity of Balboa Park, Normal Heights, and the area surrounding San Diego State University. Population losses have been due to development of habitat, with some losses due to vehicles, as well as fire.

Following the 2005 surveys by Ecological Restoration Service, SD mesa mint was found in a total of 28 basins at Site 2, including 25 vernal pools and 3 man-made depressions within the preferred alternative area (survey boundary). None were observed within the project footprint area (Figure 3.7-5, Map Pocket 3). Within the preferred alternative area (survey boundary), a total of 0.538 acre (0.218 hectare) of vernal pool was found to have SD mesa mint, predominately in the northeastern portion of the Proposed Action area that is largely being avoided.

Ecological Restoration Service found a total of 53 basins at Site 4, including 48 vernal pools and 5 man-made depressions within the preferred alternative area (survey boundary). Two pools supported SD mesa mint within the project footprint area totaling 0.097 acre (0.039 hectare). A total of 1.591 acres (0.643 hectare) supporting this species were found within the preferred alternative area (survey boundary) (Figure 3.7-6, Map Pocket 4).

SD button-celery is a perennial herb with a persistent tap root that occurs in vernal pool habitats of southern California and northwestern Baja California, Mexico. The species ranges from the

Santa Rosa Plateau (Riverside County) in the north to the mesas north of San Quentin in Baja California, Mexico. In San Diego County, SD button-celery is found in vernal pools on Camp Pendleton (Wire Mountain), Del Mar Mesa, Mira Mesa, Kearny Mesa, MCAS Miramar, San Marcos, Carlsbad, Ramona, Otay Lakes, and Otay Mesa. SD button-celery is known to be extirpated from La Jolla, as well as near the Tijuana Airport in Mexico. Population losses are primarily due to development, but also fire, vehicle traffic, off-road activities, and grazing in some areas.

Following the 2005 surveys by Ecological Restoration Service, no SD button-celery was found in any of the basins at Site 2 within the project footprint.

At Site 4, Ecological Restoration Service found a total of four basins at Site 4, all of which were vernal pools and within the preferred alternative area (survey boundary). None were observed within the project footprint area (Figure 3.7-6). Within the preferred alternative area (survey boundary), a total of 0.327 acre (0.132 hectare) supporting this species was found within the preferred alternative area (survey boundary) (Figure 3.7-6).

Spreading navarettia is a low-growing, mostly spreading, annual herb that is found in vernal pool habitats of southern California and northwestern Baja California, Mexico. The species ranges from the Santa Clarita region of Los Angeles County, east to the western lowlands of Riverside County, south through coastal and foothill San Diego County to San Quentin, Baja California, Mexico. Fewer than 30 populations exist in the United States. Nearly 60 percent of these populations are concentrated in three locations: on Otay mesa in southern San Diego County, along the San Jacinto River in western Riverside County, and near Hemet in Riverside County. In San Diego County, this species appears to be a vernal pool endemic, but in Riverside County, the species is found in vernal wetland plains near Hemet that are dominated by alkali grassland.

While there was no spreading navarettia found in any of the pools within the preferred alternative area (survey boundary) for either site, both Site 2 and Site 4 have numerous vernal pools that could support the species, so the potential for occurrence is considered low for both sites.

California Orcutt grass is a small annual grass about 0.3 foot (10 centimeters) in height that is found in vernal pool habitats of southern California and northwestern Baja California, Mexico. The species ranges from the Santa Clarita region of Los Angeles County, southeast to the Santa Rosa Plateau, Skunk Hollow, and Hemet. It once occurred near Murrieta Hot Springs, but the population has been extirpated. In San Diego County, this species is known from two pools on

MCAS Miramar, near Carlsbad, and in two pool groups on Otay Mesa. In Baja California, Mexico, this species has been found on mesas near Colonet and San Quentin.

While both Site 2 and Site 4 have a few vernal pools that could support this species, it was not found during intensive vernal pool surveys of both sites, so this species is not expected to occur.

In addition to the species discussed above, one special status plants has some potential for occurrence on the sites. Willowy monardella was not found at either site during recent surveys and is usually found in drainages with substantial scouring. Although it was not found at either site, this species is known to occur downstream from Site 2 in Rose Canyon, but the location is over 3 miles away in much more appropriate habitat that found on either Site 2 or Site 4..

Fairy Shrimp

The SDFS and RFS are both federally listed as endangered. The SDFS was listed as endangered by the USFWS on 3 February 1997 (62 Federal Register 4925). The RFS was listed as endangered by the USFWS on 16 July 1993 (58 Federal Register 41384). Critical habitat for SDFS and RFS has been proposed (68 Federal Register 19888, 69 Federal Register 23024) and does not occur on MCAS Miramar. A recovery plan for this species has been issued (USFWS 1998).

The SDFS and RFS are small aquatic crustaceans restricted to vernal pool environments. SDFS distribution occurs from Santa Barbara County south to northwestern Baja California, Mexico. SDFS have been detected within vernal pools and ephemeral basins that range from a depth of 2 to 12 inches (5 to 30 centimeters) (USFWS 2000). The SDFS is also known to occur within ditches and road ruts able to support suitable conditions (USFWS 1997). SDFS are typically observable from January to March, after winter and spring rains. Outside of this period, the hatching period may be extended to begin earlier or end later with a longer season of rainfall, providing more water or refilling of vernal pools. Simovich and Fugate (1992) found that SDFS cysts could hatch in temperatures ranging from 50 degrees Fahrenheit (°F) to 59°F (10 degrees Centigrade [°C] to 15°C). Newly hatched fairy shrimp (nauplii) emerge and develop into adults between mid-December and early May (Eriksen and Belk 1999). Hatching requirements include an aquatic environment with a moderate pH level, and low alkalinity and conductivity levels, which may be due to physiological requirements (Gonzalez et al. 1996). Nauplii mature within 10 to 20 days and may live for a lifespan of approximately 40 days (Hathaway and Simovich 1996), during which they mate and produce another generation of cysts. During the dry season, cysts are capable of withstanding extreme hot and cold temperatures and prolonged drying.

The RFS has a very restricted distribution. It has been detected in the vicinity of Temecula, Riverside County (Eng et al. 1990), and on Otay Mesa, MCB Camp Pendleton, and MCAS Miramar in San Diego County (Simovich and Fugate 1992). The RFS prefers deeper ephemeral waters and typically occupies vernal pools and temporary ponds in which the water persists into April or May and reaches a minimum depth of 1 foot (30 centimeters) at filling (Eng et al. 1990). Outside of this period, the hatching period may be extended to begin earlier or end later with a longer season of rainfall, providing more water or refilling of vernal pools. The primary threat to both fairy shrimp species is urban and agricultural development of its habitat.

Both species have been found in San Diego County on mesa tops, and in grassland, agricultural, coastal sage scrub, and chaparral habitats. Chaparral, coastal sage scrub, and grassland habitats are associated most commonly with San Diego hardpan and claypan basins, with suitable soil types to support vernal pools (Eriksen and Belk 1999).

On MCAS Miramar, SDFS have been found in all 10 vernal pool management units (MCAS Miramar 2006). RFS have only been detected in one pool east of I-15 (MCAS Miramar 2006). Of the 81 basins within Site 2, SDFS were detected within a total of 41 basins (0.447 acre; 0.181 hectare), including 12 vernal pools (0.131 acre; 0.053 hectare) (Figure 3.7-5). Outside of the Site 2 development footprint and within the preferred alternative area, SDFS were observed within 254 vernal pools (2.701 acre; 1.093 hectare) and 82 man-made depressions (0.351 acre; 0.142 hectare). Of the 115 basins within Site 4, SDFS were detected within a total of 50 basins (0.586 acre; 0.237 hectare), including 25 vernal pools (0.261 acre; 0.106 hectare) (Figure 3.7-6). Outside of the Site 4 development footprint and within the preferred alternative area, SDFS were observed within 128 vernal pools (3.773 acres; 1.527 hectares) and 39 man-made depressions (0.379 acre; 0.153 hectare). No RFS or RFS cysts were detected within Site 2 or Site 4 during fairy shrimp cyst sampling or fairy shrimp wet season surveys. RFS is not expected to occur on either site, due to the documented presence of this species in only one pool, east of I-15.

CAGN

The CAGN was listed as a threatened species by the USFWS on 25 March 1993 (58 Federal Register 16742). Critical habitat has been proposed (68 Federal Register 20228) but does not occur on MCAS Miramar. A recovery plan has not been issued for this species.

The CAGN's range is restricted to the coastal slopes of southern California; from southern Ventura County south through Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties; and California south to near El Rosario, Baja California, Mexico (USFWS 1997). The CAGN is usually found in association with coastal sage scrub communities, particularly Diegan coastal sage scrub, occurring on gentle slopes (typically less than 40 percent) within the maritime and coastal climate zones, generally below 1,000 feet (304.8 meters) in elevation (Atwood and Bolsinger 1992; Mock 1993, 1998). It is a nonmigratory year-round resident of coastal southern California and Baja California sage scrub communities. California sagebrush and flat-top buckwheat are typically the dominant plant species in plant communities that support CAGN (Weaver 1998). The CAGN also uses chaparral, grassland, and riparian plant communities when adjacent to or intermixed with sage scrub-dominated areas (Campbell et al. 1998). These areas can be particularly important to the species during certain times of year for dispersal or foraging during inclement weather conditions (e.g., drought). Particularly within the more open sage scrub-chaparral communities of MCAS Miramar, CAGN territories are known to encompass both sage scrub and chamise chaparral (Unitt 2004). On MCAS Miramar, this species has been known to utilize non-sage scrub habitats when territories are larger for foraging or dispersal (Fischer 2006; Bitterroot Restoration 2005).

The Cedar Fire of 2003 burned much of MCAS Miramar east of Kearny Villa Road. Any CAGNs that were present when the wildfire spread through East Miramar were killed along with any other wildlife unable to escape the fire. Remaining unburned patches of plant communities in this area were typically chaparral, dominated by chamise, and range in size from 0.003 to 105 acres (0.001 to 42.5 hectares). The remaining unburned plant communities west of Kearny Villa Road generally occur in large sections. All CAGNs detected during 2004 protocol surveys were in unburned areas, with the exception of two individuals near Camp Elliot. All CAGNs were located west of I-15, except for these two individuals and two pair located in unburned areas of Camp Elliot. Thus, habitats suitable to support CAGN in areas unburned by the 2003 Cedar Fire, including areas within Site 2, may potentially serve as an important refuge area for CAGNs.

Survey data from 1998 through 2001 and 2004 show an average of two pair of CAGN breeding directly adjacent to the Site 2 project footprint since 1998 (Figure 3.7-7). Specifically, one pair was observed with one active nest during 1998, two pair were observed in 1999 with a total of five nests, and two pair were observed in 2001 with a total of three nests. One pair and one fledgling with an associated nest were observed in 2004. One breeding territory associated with this pair was detected and mapped during 2004 (Figure 3.7-7). Within the Site 4 project footprint, one CAGN pair has been detected. This pair was observed with one nest in 1998, one

nest in 1999 within the project footprint and another immediately adjacent, and two nests within the project footprint and one adjacent to the northwestern boundary in 2000 (Figure 3.7-8). This same pair was observed directly adjacent to the northwestern boundary of the Site 4 project footprint with an active nest in 2001.

Recently occupied CAGN habitat was determined by mapping the following areas:

- CAGN territories mapped during 2004 protocol surveys (Bitterroot Restoration 2005);
- coastal sage scrub and sage scrub-chaparral in the vicinity of known CAGN locations;
- small islands of typically unsuitable plant communities within suitable, occupied plant communities (coastal sage scrub and sage scrub-chaparral); and
- a band of less commonly used plant community type(s) when adjacent to known CAGN nesting areas (except severely disturbed).

Recently occupied CAGN habitat was determined to occur within 30.21 acres (12.23 hectares) of the Site 2 project footprint (Figure 3.7-7) within the following plant community land cover types: chamise chaparral, disturbed chamise chaparral, Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, disturbed non-native grassland, disturbed non-native/native grassland, southern mixed chaparral, and disturbed habitat. Although CAGNs have not been recorded within the Site 2 project footprint, an average of two pair of CAGN have been recorded directly adjacent to the south of the Site 2 project footprint, associated with recently occupied habitat within the Site 2 project footprint. These two pair are expected to utilize the site for breeding and nesting activities, foraging, and dispersal.

Recently occupied habitat was determined to occur within 14.88 acres (6.02 hectares) of Site 4 within disturbed Diegan coastal sage scrub, disturbed habitat, non-native grassland, and developed land cover type. An average of one CAGN pair has been recorded within Site 4, associated with recently occupied habitat within Site 4. This pair is expected to use the site for breeding and nesting activities, foraging, and dispersal.

American Peregrine Falcon

The American peregrine falcon is a state-endangered, state fully protected raptor species. It is often found along or near the coast, especially around mudflats, shores, or ponds where large

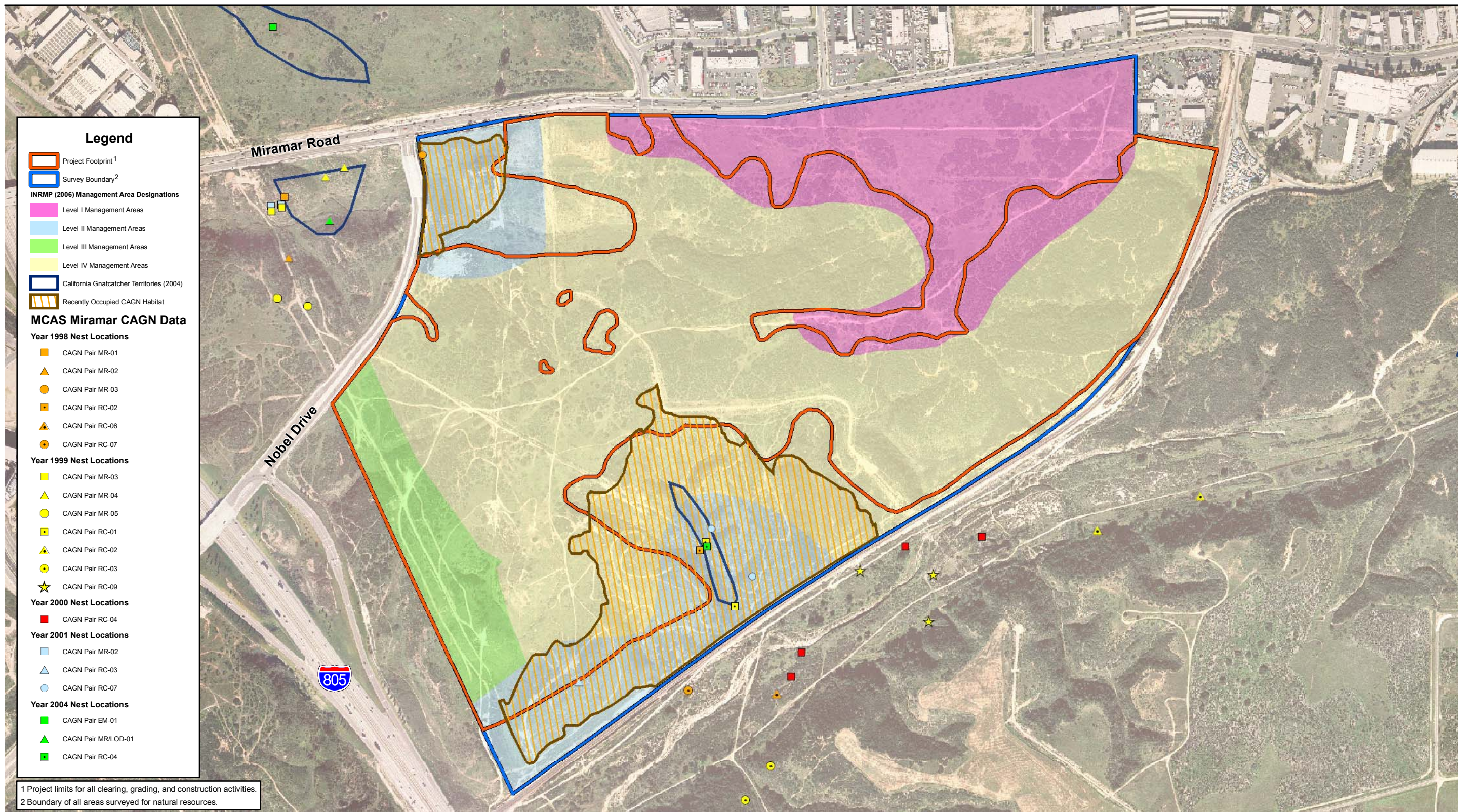
numbers of water birds congregate. This species is also occasionally seen farther inland near reservoirs or on the coastal slopes (Unitt 2004). The American peregrine falcon ranges throughout North, Central, and South America; Africa; and Australia. Although this species was once widely distributed in North America, pesticide poisoning has led to its extirpation from the eastern United States and southeastern Canada. Its current North American range extends from Alaska southeast into Canada and south to Baja California and northern Mexico. Although water fowl species, the primary source of prey for the American peregrine falcon, have been detected on MCAS Miramar, suitable nesting and foraging habitat for the American peregrine falcon is limited on both sites. While there is no foraging habitat on Site 2, a small acreage of freshwater marsh, which may support prey sources, does occur on Site 4. This species is not expected to occur on Site 2, and there is only a low potential for this species to occur within Site 4.

Golden Eagle

The golden eagle is a raptor protected under the BAGEPA and is also a state species of special concern. Golden eagles are distributed throughout North America, Eurasia, and northern Africa. Golden eagles occur as breeding residents in the western half of the United States and formerly nested in the northeast. This species is an uncommon resident throughout California and San Diego County (Unitt 2004). Habitat requirements include large, open areas for foraging. Foraging occurs throughout a variety of habitats, including grassland, coastal sage scrub, and chaparral habitats found throughout Sites 2 and 4. Active nesting pairs in the southwest half of San Diego County occur near Ramona, Lake Hodges, tributary canyons of the San Pasqual Valley, San Vicente Reservoir, El Capitan Reservoir, and San Miguel and are not known to breed on MCAS Miramar. However, this species is known to forage on MCAS Miramar and may potentially nest within the Cleveland National Forest. They have been sighted in the eastern portion of MCAS Miramar, near Sycamore Canyon (MCAS Miramar 2006). This species has a moderate potential to forage within suitable habitat on both sites.

Other Species of Regional Special Concern

Other Species of Regional Special Concern include former candidates for federal listing as threatened or endangered, species of concern to the State of California (CDFG 2005a, b, c, d),



Source: MCAS Miramar 2004; Eagle Aerial 2004

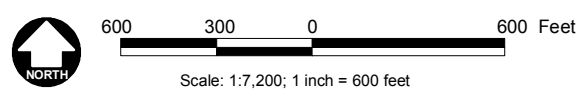
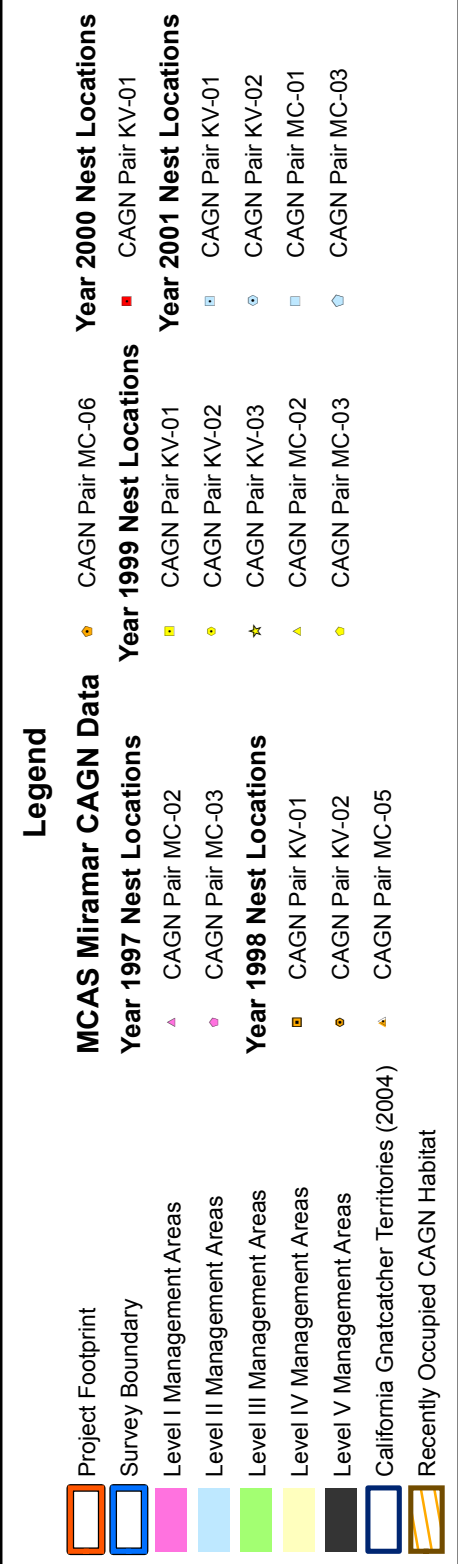
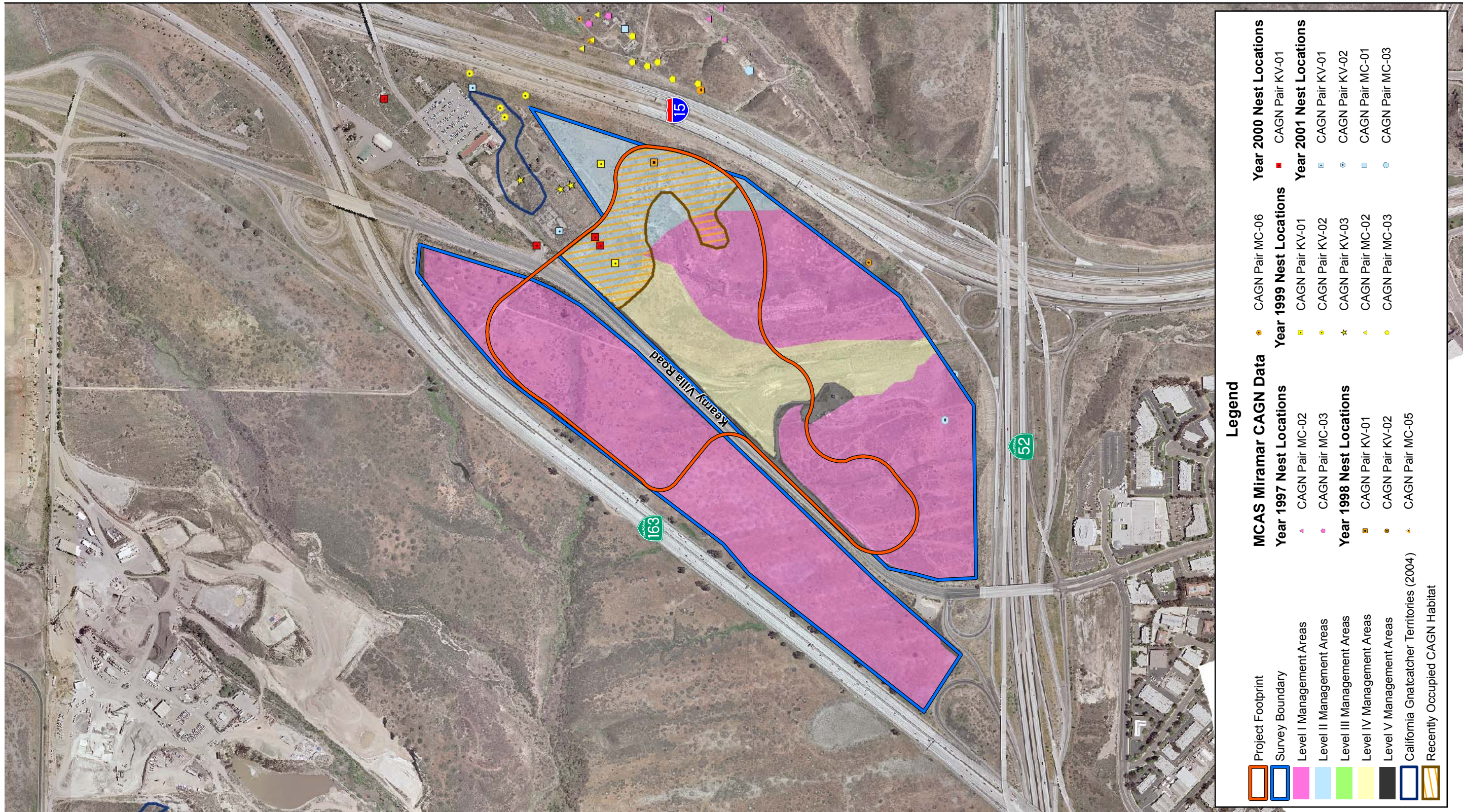


Figure 3.7-7
Site 2 Alternative Coastal California Gnatcatcher Resources

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Source: MCAS Miramar 2004; Eagle Aerial 2004

700 350 0 700 Feet

Scale: 1:8,400; 1 inch = 700 feet

Figure 3.7-8
Site 4 Alternative Coastal California
Gnatcatcher Resources

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and species that are regionally rare or of limited distribution. Federal Species of Special Concern are species that were formerly under consideration by the USFWS for status changes (includes Category 1, 2, and 3 taxa). Though the USFWS discontinued the use of these designations, they remain concerned about these species and encourage further study into their conservation status. As more information is obtained on such species, their protected status could change.

A total of 52 other species of regional special concern with some potential to occur on both sites include 16 plants, 1 invertebrate, 1 amphibian, 8 reptiles, 22 birds, and 6 mammals. A complete list of those other special status species, their habitat preferences, and potential to occur on Site 2 or Site 4 are included in Table 3.7-3. A brief summary is included in the following text.

Other Plant Species of Regional Concern

Plants

Twelve sensitive plant species have been recorded for MCAS Miramar and have been known to occur or have potential to occur within Site 2 and Site 4. Of these 12, 10 are designated as federal species of special concern and include Nuttall's scrub oak (*Quercus dumosa*), San Diego barrel cactus (*Ferocactus viridescens*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), variegated dudleya (*Dudleya variegata*), wart-stemmed ceanothus (*Ceanothus verrucosus*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), Palmer's grappling hook (*Harpagonella palmeri* var. *palmeri*), Mission Canyon bluecup (Table 3.7-3 Other Special Status Known to Occur or With the Potential to Occur within the Site 2 or Site 4 Alternatives ssp. *filicaulis*), Orcutt's brodiaea (*Brodiaea orcuttii*), and San Diego goldenstar (*Muilla clevelandii*). Some of these species are known from MCAS Miramar and from the site alternatives (e.g., Orcutt's brodiaea), while others are not known from MCAS Miramar, but habitat suggests there is a low potential of occurrence (e.g., Mission Canyon bluecups). Specific habitat requirements and known or potential for occurrence for these 12 species are provided in Table 3.7-3.

Butterflies

One sensitive butterfly petitioned for federal listing with the USFWS in 2004, resulting in a Negative Finding in 2006, is the Hermes copper (*Lycaena hermes*), and is known to have historically occurred in the Miramar region. It is known to occur within all suitable habitat in a

**Table 3.7-3
Other Special Status Known to Occur or
With the Potential to Occur within the Site 2 or Site 4 Alternatives**

Common Name (Scientific Name)	Sensitivity Status¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives³
Plants			
Nuttall's scrub oak (<i>Quercus dumosa</i>)	USFWS: Species of Special Concern CNPS: List 1B	Occurs in chaparral along the coast of California.	Known to occur on Site 2, with a high potential to occur on Site 4, and known from MCAS Miramar. Suitable coastal chaparral habitat occurs throughout both sites.
San Diego barrel cactus (<i>Ferocactus viridescens</i>)	USFWS: Species of Special Concern CNPS: List 2	Coastal sage scrub, chaparral, maritime succulent scrub, and grasslands.	High potential to occur on both sites and known from MCAS Miramar. Suitable coastal sage scrub, chaparral, and grassland habitat occurs throughout both sites.
Summer holly (<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>)	USFWS: Species of Special Concern CNPS: List 1B	Slopes in chaparral habitat, predominantly in low elevations and along the coast.	High potential to occur on Site 2, where suitable habitat occurs throughout the site. Low potential to occur on Site 4 due to insufficient habitat. Known from MCAS Miramar.
Variegated dudleya (<i>Dudleya variegata</i>)	USFWS: Species of Special Concern CNPS: List 1B	Coastal sage scrub, cismontane woodlands, grasslands, and chaparral on dry slopes and mesas.	Moderate potential to occur on both sites and known from MCAS Miramar. Suitable coastal sage scrub, chaparral, and grassland habitat occurs throughout both sites.
Wart-stemmed ceanothus (<i>Ceanothus verrucosus</i>)	USFWS: Species of Special Concern CNPS: List 2	Chaparral habitats along the coastal mesas and slopes.	Known to occur on Site 2, with a moderate potential to occur on Site 4 and known from MCAS Miramar. Suitable coastal sage scrub, chaparral, and grassland habitat occurs throughout both sites.
Long-spined spineflower (<i>Chorizanthe polygonides</i> var. <i>longispina</i>)	USFWS: Species of Special Concern CNPS: List 1B	Dry places in chaparral habitat, close-coned coniferous forest, and coastal sage scrub.	Known to occur on Site 2 with a high potential to occur on Site 4 and known from MCAS Miramar. Suitable coastal sage scrub, chaparral, and grassland habitat occurs throughout both sites.
Palmer's grappling hook (<i>Harpagonella palmeri</i> var. <i>palmeri</i>)	USFWS: Species of Special Concern CNPS: List 2	Dry slopes and mesas below 1,500 feet (457 meters) in heavy clay soils within chaparral, coastal sage scrub, and grassland habitats.	Moderate potential to occur on both sites. Suitable coastal sage scrub, chaparral, and grassland habitat occurs throughout both sites.

Common Name (Scientific Name)	Sensitivity Status¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives³
Mission Canyon bluecup (<i>Githopsis diffusa</i> ssp. <i>filicaulis</i>)	USFWS: Species of Special Concern CNPS: List 1B	Mesic and disturbed sites in chaparral habitats.	Low potential to occur on either site. Although suitable chaparral habitat occurs on both sites, this species is only known from five occurrences in San Diego County, and none are on MCAS Miramar.
Palmer's sagewort (<i>Artemisia palmeri</i>)	CNPS: List 2	Sandy soils, primarily in coastal sage scrub.	Moderate potential to occur on both sites and known from MCAS Miramar. Suitable coastal sage scrub habitat occurs throughout both sites.
San Diego sunflower (<i>Viguiera laciniata</i>)	CNPS: List 2	Chaparral and coastal sage scrub slopes, especially south-facing slopes.	High potential to occur on both sites and known from MCAS Miramar. Suitable coastal sage scrub and chaparral habitat occur throughout both sites.
Orcutt's brodiaea (<i>Brodiaea orcuttii</i>)	USFWS: Species of Special Concern CNPS: List 1B	Clay soils within closed cone coniferous forest, chaparral, cismontane woodland, meadow, valleys, grasslands, and vernal pools.	Known to occur throughout both sites.
San Diego goldenstar (<i>Muilla clevelandii</i>)	USFWS: Species of Special Concern CNPS: List 1B	San Diego goldenstar is found in chaparral, coastal sage scrub, grasslands, and vernal pools on mesa top habitat.	Known to occur throughout both sites.
Invertebrates			
Hermes copper (<i>Lycaena hermes</i>)	USFWS: Petitioned for listing ²	Found in chaparral and coastal sage scrub habitats with redberry (<i>Rhamnus crocea</i>), its primary host plant.	Moderate potential to occur within either site. Despite the extremely limited distribution of this species, hermes copper has been detected on MCAS Miramar within San Clemente Canyon, and suitable habitat is present on both sites. Additionally, redberry is present on Site 2 and has a potential to occur on Site 4.
Amphibians			
western spadefoot toad (<i>Spea hammondi</i>)	CDFG: Species of Special Concern	Temporary ponds, vernal pools, and backwaters of slow flowing creeks. Also upland habitats such as grasslands and coastal sage scrub where burrows are constructed.	High potential to occur on both sites. This species is known for MCAS Miramar, and suitable vernal pool habitat occurs throughout both sites.

Common Name (Scientific Name)	Sensitivity Status ¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives ³
Reptiles			
southwestern pond turtle (<i>Clemmys marmorata pallida</i>)	CDFG: Species of Special Concern	Inhabits permanent or nearly permanent bodies of water in many habitat types; below 600 feet (183 meters). Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, need suitable nesting areas.	Not expected to occur on Site 2, low potential to occur on Site 4. No suitable freshwater marsh occurs on Site 2, and limited freshwater marsh habitat occurs on Site 4.
San Diego horned lizard (<i>Phrynosoma coronatum blainvillei</i>)	CDFG: Species of Special Concern	A variety of habitats including sage scrub, chaparral, coniferous, and broadleaf woodlands. Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	Known to occur on Site 2, high potential to occur on Site 4. Species has been documented from Site 2, and suitable sage scrub, chaparral, and grassland habitat occurs throughout both sites.
Coronado Island skink (<i>Eumeces skiltonianus interparietalis</i>)	CDFG: Species of Special Concern	Most commonly found in open areas, sparse brush, and in oak woodlands, usually under rocks, leaf litter, logs, debris, or in the shallow burrows it digs.	High potential to occur on both sites. Suitable open areas and scrub habitat occurs throughout both sites.
Belding's orange-throated whiptail (<i>Cnemidophorus hyperythrus beldingi</i>)	CDFG: Species of Special Concern	Sage scrub that covers about 50 percent of the ground without dense grasses in between. Also dense to extremely open stands of sage as well as chamise chaparral and floodplain areas.	High potential to occur on both sites. Suitable sage scrub, chaparral, and grassland habitat occurs throughout both sites, and this species has been recorded adjacent to Site 4.
silvery legless lizard (<i>Anniella pulchra pulchra</i>)	CDFG: Species of Special Concern	Common in several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub types.	High potential to occur on both sites. Suitable coastal scrub, chaparral, and grassland habitat occurs throughout both sites.
northern red-diamond rattlesnake (<i>Crotalus ruber ruber</i>)	CDFG: Species of Special Concern	Chaparral, coastal sage scrub, along creek banks, and in rock outcrops or piles of debris. Habitat preferences include dense vegetation in rocky areas.	High potential to occur on both sites. Suitable sage scrub, chaparral, and grassland habitat occurs throughout both sites.
coastal patch-nosed snake (<i>Salvadora hexalepis virgulata</i>)	CDFG: Species of Special Concern	Found in coastal chaparral, desert scrub, washes, sandy flats and rocky areas.	High potential to occur on both sites. Suitable sage scrub, chaparral, and grassland habitat occurs throughout both sites.
Hammond's two-striped garter snake (<i>Thamnophis hammondi hammondi</i>)	CDFG: Species of Special Concern	Coastal California from vicinity of Salinas to northwest Baja California, from sea to about 7,000 feet (2,134 meters) in elevation. Highly aquatic, found in or near permanent freshwater, often along streams with rocky beds and riparian growth.	Low potential to occur on Site 2. Moderate potential to occur on Site 4. Though freshwater marsh habitat does not occur on Site 2, limited drainages are present. Suitable habitat is present on Site 4.

Common Name (Scientific Name)	Sensitivity Status ¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives ³
Birds			
northern harrier (<i>Circus cyaneus</i>)	CDFG: Species of Special Concern	Occurs in grasslands and agricultural fields during migration and in winter.	High potential to occur on both sites. Suitable grassland habitat is available for nesting on both sites, and suitable foraging habitat is available throughout both sites.
Osprey (<i>Pandion halieatus</i>)	CDFG: Species of Special Concern	Associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats.	Low potential to occur on either site. A small pond with a limited potential to support fish is present on Site 4. However, this species may use either site as a stopover.
ferruginous hawk (<i>Buteo regalis</i>)	CDFG: Species of Special Concern	Typically occurs in arid or dry grassland habitats.	Moderate potential to occur on both sites. Suitable foraging habitat is available throughout both sites, and this species may occur as a migrant.
sharp-shinned hawk (<i>Accipiter striatus</i>)	CDFG: Species of Special Concern	Visitor to woodlands, parks, and residential areas.	Moderate potential to occur on both sites. Suitable foraging habitat is available throughout both sites, and this species may occur as a migrant.
Cooper's hawk (<i>Accipiter cooperi</i>)	CDFG: Species of Special Concern	Mature forests, open woodlands, riparian forests, and parks.	High potential to occur on both sites. This species is widely distributed throughout San Diego County, and suitable foraging habitat occurs throughout both sites.
merlin (<i>Falco columbarius</i>)	CDFG: Species of Special Concern	Frequents coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, and edges. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats.	Moderate potential to occur on both sites. While no nesting habitat occurs on either site, suitable foraging habitat is available throughout both sites.
prairie falcon (<i>Falco mexicanus</i>)	CDFG: Species of Special Concern	Forages in open grasslands, agricultural fields, and desert scrub. Prefers ledges on rocky cliffs for nesting.	Moderate potential to occur on both sites. While no nesting habitat occurs on either site, suitable foraging habitat is available throughout both sites.
burrowing owl (<i>Athene cunicularia</i>)	CDFG: Species of Special Concern	Inhabits open areas such as grasslands, pastures, coastal dunes, desert scrub, and the edges of agricultural fields.	High potential to occur on both sites. Suitable nesting and foraging habitat occurs throughout both sites, and this species has been recorded east of Site 4.
short-eared owl <i>Asio flammeus</i>	CDFG: Special Concern Species	Inhabits marshes and grassland habitat. Nests on the ground. Migratory species.	Moderate potential to occur on both sites. Suitable foraging habitat is available throughout both sites, and this species may occur as a migrant.

Common Name (Scientific Name)	Sensitivity Status¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives³
long-eared owl (<i>Asio otus</i>)	CDFG: Species of Special Concern	Inhabits/nests in riparian groves of willows and cottonwoods, stands of oaks in desert mountains, and dense stands of junipers. This species disperses widely and can migrate long distances. Exhibits low nest site fidelity. Nests communally in the winter.	Moderate potential to occur on both sites. While no suitable nesting habitat occurs on either site, suitable foraging habitat is available throughout both sites, and this species may occur as a migrant.
long-billed curlew <i>Numenius americanus</i>	CDFG: Special Concern Species	Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands.	Low potential to occur on either site. While no suitable nesting habitat occurs on either site, this species may occur as a migrant in the winter.
Vaux's swift (<i>Chaetura vauxi</i>)	CDFG: Species of Special Concern	Prefers redwood and Douglas-fir habitats with nest alternatives in large hollow trees and snags, especially tall, burned-out stubs. Fairly common migrant throughout most of California in April and May, and August and September.	Moderate potential to occur on both sites. While no suitable nesting habitat occurs on either site, suitable foraging habitat is available throughout both sites, and this species may occur as a migrant.
black swift (<i>Cypseloides niger</i>)	CDFG: Species of Special Concern	Nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats.	Moderate potential to occur on both sites. While no suitable nesting habitat occurs on either site, suitable foraging habitat is available throughout both sites, and this species may occur as a migrant.
coastal cactus wren (<i>Campylorhynchus brunneicapillus couesi</i>)	CDFG: Species of Special Concern	Coastal sage scrub with extensive stands of tall prickly pear or cholla cacti (<i>Opuntia</i> sp.).	Moderate potential to occur on both sites. Extensive stands of tall prickly pear or cholla cacti (<i>Opuntia</i> sp.) is limited on both sites, thus nesting is not expected. However, this species may forage on both sites.
loggerhead shrike (<i>Lanius ludovicianus</i>)	CDFG: Species of Special Concern	Occurs in semi-open country with utility posts, wires, and trees to perch on.	Moderate potential to occur on both sites. Suitable foraging habitat is available throughout both sites.
southern California rufous- crowned sparrow (<i>Aimophila ruficeps canescens</i>)	CDFG: Species of Special Concern	Grassy or rocky slopes with open scrub at elevations from sea level to 600 feet (183 meters). Occurs mainly in coastal sage scrub.	High potential to occur on both sites. Suitable nesting and foraging habitat occurs throughout both sites, and this species has been recorded to the east of Site 4.
summer tanager (<i>Piranga rubra</i>)	CDFG: Species of Special Concern	Prefers cottonwood-willow associations of riparian habitats for breeding, feeding, cover, and other activities. It is a rare but regular migrant and winter visitor along the coast, mostly from Los Angeles County and southward.	Low potential to occur on either site. Species may occur as a rare migrant on both sites.

Common Name (Scientific Name)	Sensitivity Status¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives³
Bell's sage sparrow (<i>Amphispiza belli belli</i>)	CDFG: Species of Special Concern	Utilizes low, fairly dense stands of shrubs. Occupies sagebrush, alkali desert scrub, desert scrub, and similar habitats in transmontane regions. In cismontane California, frequents chaparral dominated by chamise, and coastal scrub dominated by sage.	High potential to occur on both sites. Suitable nesting and foraging habitat occurs throughout both sites, and this species has been recorded to the east of Site 4.
California horned lark (<i>Eromophila alpestris</i>)	CDFG: Species of Special Concern	Often occurs in fields, grasslands, shores, and tundra habitats.	High potential to occur on both sites. Suitable nesting and foraging habitat occurs on both sites.
yellow warbler (<i>Dendroica petechia</i>)	CDFG: Species of Special Concern	Inhabits riparian habitats dominated by cottonwoods and willows. Nesting habitat must have dense understory vegetation that contains cottonwoods and willows. Occurs as a migrant in upland and desert habitats.	Moderate potential to occur on both sites. Species may occur as a migrant on both sites.
yellow-breasted chat (<i>Icteria virens</i>)	CDFG: Species of Special Concern	An uncommon and localized summer resident. The breeding population is confined to riparian woodlands. Can be found up to 6,561 feet (2,000 meters) in elevation in desert riparian habitats.	Low potential to occur on either site. Suitable nesting habitat is severely limited on both sites; however, this species may forage or perch in upland habitats on both sites.
tri-colored blackbird (<i>Agelaius tricolor</i>)	CDFG: Species of Special Concern	Suitable habitat for this species includes emergent wetland with dense cattails or dense riparian willow vegetation.	Not expected to occur on Site 2; low potential to occur on Site 4. Suitable freshwater marsh habitat is not present on Site 2 but occurs in limited acreages on Site 4.
Mammals			
Yuma myotis (<i>Myotis yumanensis</i>)	WBWG: Medium Priority	Wide range of habitats includes desert scrub, coniferous forests, and chaparral. Must have a water source. Forages over riparian areas and water bodies. Roosts in cliff crevices, caves, mines, and trees.	Low potential to occur on Site 2, moderate potential to occur on Site 4. Though no water bodies occur on Site 2, this species may pass through or roost temporarily on vegetation during foraging. Suitable freshwater marsh foraging habitat does occur on Site 4.
pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	CDFG: Species of Special Concern	Habitats include pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases.	Moderate potential to occur on both sites. Suitable foraging habitat occurs on both sites.

Common Name (Scientific Name)	Sensitivity Status ¹	Habitat Description	Potential to Occur within the Site 2 or Site 4 Alternatives ³
greater western mastiff bat (<i>Eumops perotis californicus</i>)	CDFG: Special Concern Species WBWG: High Priority	Found in desert scrub, chaparral, oak woodland, pinyon pine, juniper, with rocky cliff and canyon areas. Forages far distances from roosting site. Roosts in cliffs, rock crevices, and buildings. Forages in dry desert washes, chaparral, oak woodland, and grassland.	Moderate potential to occur on both sites. Suitable foraging habitat occurs on both sites.
San Diego pocket mouse (<i>Chaetodipus californicus femoralis</i>)	CDFG: Species of Special Concern	Uses coastal scrubs, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland.	Moderate potential to occur on both sites. Suitable habitat occurs on both sites.
Dulzura (California) pocket mouse (<i>Chaetodipus californicus femoralis</i>)	CDFG: Species of Special Concern	Inhabits a variety of habitats year-round, including coastal scrub, chamise-redshank and montane chaparral, sagebrush, annual grassland, valley foothill hardwood, valley foothill hardwood-conifer, and montane hardwood habitats.	Moderate potential to occur on both sites. Suitable habitat occurs on both sites.
San Diego desert woodrat (<i>Neotoma lepida intermedia</i>)	CDFG: Species of Special Concern	Common to abundant in Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats.	Moderate potential to occur on both sites. Suitable habitat occurs on both sites.

¹ Sensitivity Status Key

Federal U.S. Fish and Wildlife Service (USFWS)

State California Department of Fish and Game (CDFG)

Other California Native Plant Society (CNPS)

List 1B: Plants rare and endangered in California and elsewhere.

List 2: Plants rare and endangered in California, but more common elsewhere.

List 3: Plants that lack the necessary information to assign them to other lists.

List 4: Plants of limited distribution.

WBWG = Western Bat Working Group

² The Hermes copper was Petitioned for Listing in 2004, and resulted in Negative 90-finding that listing is not warranted (71 Federal Register 44966).

³ Definition of Low, Moderate, and High Potential

Low Species with few known recent (i.e., last 25 years) recorded occurrences/populations nearby, but suitable habitat within the survey area is highly disturbed or extremely limited in area. Also, species with known historic (i.e., more than 25 years) recorded occurrences/populations from the site or nearby; however, the suitable habitat onsite has been severely reduced or disturbed since past documentation.

Medium Species with known recent (i.e., last 25 years) recorded occurrences/populations nearby (i.e., within the same USGS quadrangle map or an adjacent quadrangle map); however, suitable habitat within the survey area is moderately disturbed. Suitable habitat for the species could be fragmented or small/limited in size. Additionally, a “moderate” assessment would be made for species for which suitable habitat occurs within the survey area, but the survey area is near the edge of the species’ range or there are no reported occurrences/populations from surveys of nearby areas.

High Species with known recent (i.e., last 25 years) recorded occurrences/populations nearby (i.e., within the same USGS quadrangle map or an adjacent quadrangle map) and for which highly suitable habitat occurs within the survey area. Suitable habitat includes all necessary habitat elements to support the species (habitat type, soils, cover, food resources, etc.).

large portion of San Clemente Canyon east of I-15 (MCAS Miramar 2006). This butterfly is typically found near its larval host plant, redberry (*Rhamnus crocea*), with adults frequently making use of flat-topped buckwheat as a nectar plant. This species is known to have stable populations from year to year. This is possible because redberry is a hardy perennial shrub, which is little impacted by moderate drought conditions. The sedentary behavior of the Hermes copper, due in part to stability within its habitat, makes “natural colonization a very slow process” (Brown 1991). The species has a potential to be present in the study area and is best censused during the flight period from early May to late June. The Hermes copper has a moderate potential to occur on Sites 2 and 4 despite the extremely limited distribution of this species. Its larval host plant was detected on Site 2 during 2004 vegetation verification surveys, and has a potential to occur on Site 4.

Amphibians

The western spadefoot toad, a state species of special concern, has some potential to occur on both sites. This toad is associated with breeding only in temporary pools that form after heavy winter rains. Adults and newly transformed young spend the dry season in mammal burrows within upland habitats. This species has a high potential to occur within vernal pool habitats on Sites 2 and 4.

Reptiles

Eight sensitive reptile species, including the southwestern pond turtle, San Diego horned lizard, Coronado Island skink, Belding’s orange-throated whiptail, silvery legless lizard (*Anniella pulchra pulchra*), northern red-diamond rattlesnake, coastal patch-nosed snake (*Salvadora hexalepis virgulata*), and Hammond’s two-striped garter snake, have been recorded for MCAS Miramar and are known to occur or have some potential to occur within Sites 2 and 4. All eight of these species are designated as state species of special concern. Of these species, all but the southwestern pond turtle and Hammond’s two-striped garter snake are known for upland scrub and chaparral habitats. The southwestern pond turtle requires standing water that is present only on Site 4, while Hammond’s two-striped garter snake is known to occur where pooled water remains into the summer season and is frequently observed at large vernal pools. Specific habitat requirements and known or potential for occurrence for these eight species are provided in Table 3.7-3.

Birds

An additional 22 sensitive avian species designated as state species of special concern are known to occur on MCAS Miramar and may occur within either Site 2 or Site 4, based on the known distribution of each species, and availability of suitable habitat. These birds include 11 raptor species, 1 shorebird, and 11 song bird species. A complete list of these species, their habitat preferences, and potential to occur on both sites are provided in Table 3.7-3.

Mammals

Three bat species and three rodent species have been recorded on MCAS Miramar and may potentially occur on either Site 2 or Site 4. The pocketed free-tailed bat and greater western mastiff bat are both state species of special concern, while the Yuma myotis is a medium-priority species designated by the Western Bat Working Group. The pocketed free-tailed bat is more of a habitat generalist, while the Yuma myotis and greater western mastiff bat are more habitat specialists. The Yuma myotis has a low potential to occur on Site 2, and a moderate potential to occur on Site 4, while the pocketed free-tailed bat and greater western mastiff both have a moderate potential to occur on both sites. The three rodent species with some potential to occur are the San Diego desert woodrat, San Diego pocket mouse, and Dulzura pocket mouse. A complete list of all mammals with the potential to occur and their habitat preferences, on both sites, is provided in Table 3.7-3.

Wildlife Corridors

In an urban context, a wildlife movement corridor can be defined as a linear landscape feature of sufficient width and buffer to allow animal movement between two patches of comparatively undisturbed habitat, or between a patch of habitat and some vital resources. Regional corridors are defined as those linking two or more large areas of natural open space, and local corridors are defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development.

Wildlife movement corridors are essential in geographically diverse settings, and especially in urban settings, for the sustenance of healthy and genetically diverse animal communities. At a minimum, they promote colonization of habitat and genetic variability by connecting fragments of like habitat and they help sustain individual species distributed in and among habitat fragments. Habitat fragments, by definition, are separated by otherwise foreign or inhospitable

habitats, such as urban/suburban tracts. Isolation of populations can have many harmful effects and may contribute significantly to local species extinction.

A viable wildlife movement corridor consists of more than a path between habitat areas. To provide food and cover for transient species as well as resident populations of less mobile animals, a wildlife movement corridor must also include pockets of vegetation.

Habitat linkage and wildlife corridor designations and assessments were obtained from the INRMP (MCAS Miramar 2006). Most of the eastern side of MCAS Miramar functions as part of a regional habitat linkage corridor to adjacent open space areas in Beeler Canyon and Sycamore Canyon Preserve to the north and east, and Mission Trails Regional Park to the south. The western portion of MCAS Miramar connects with regional corridors by Soledad Canyon to Torrey Pines and Los Peñasquitos Preserve to the north and west. Although Site 2 is bordered by I-805, Miramar Road, Nobel Drive, and the Atchison Topeka Railroad, at the local level it provides direct wildlife habitat connectivity with Rose Canyon along the southern boundary of the site, as well as direct habitat connectivity to open space areas on MCAS Miramar to the north. Site 2 also provides indirect wildlife habitat connectivity to off-site undeveloped areas in Soledad Canyon also to the north. Site 4 occurs within an isolated area of open space, surrounded by I-15, SR 163, SR 52, and Kearny Villa Road. It has no connectivity with other open space areas on MCAS Miramar, and does not function as part of a regional habitat linkage or local wildlife corridor. The nearest wildlife corridor is San Clemente Canyon, approximately 1,000 feet (304.8 meters) to the northwest of Site 4, across SR 163.

3.8 SOILS AND GEOLOGY

This section will discuss the geology, seismicity, topography, and soils of the alternative sites. The geology and seismicity conditions and issues will be addressed on a more areawide basis and the soils and topography will be addressed for each alternative site.

3.8.1 Geology

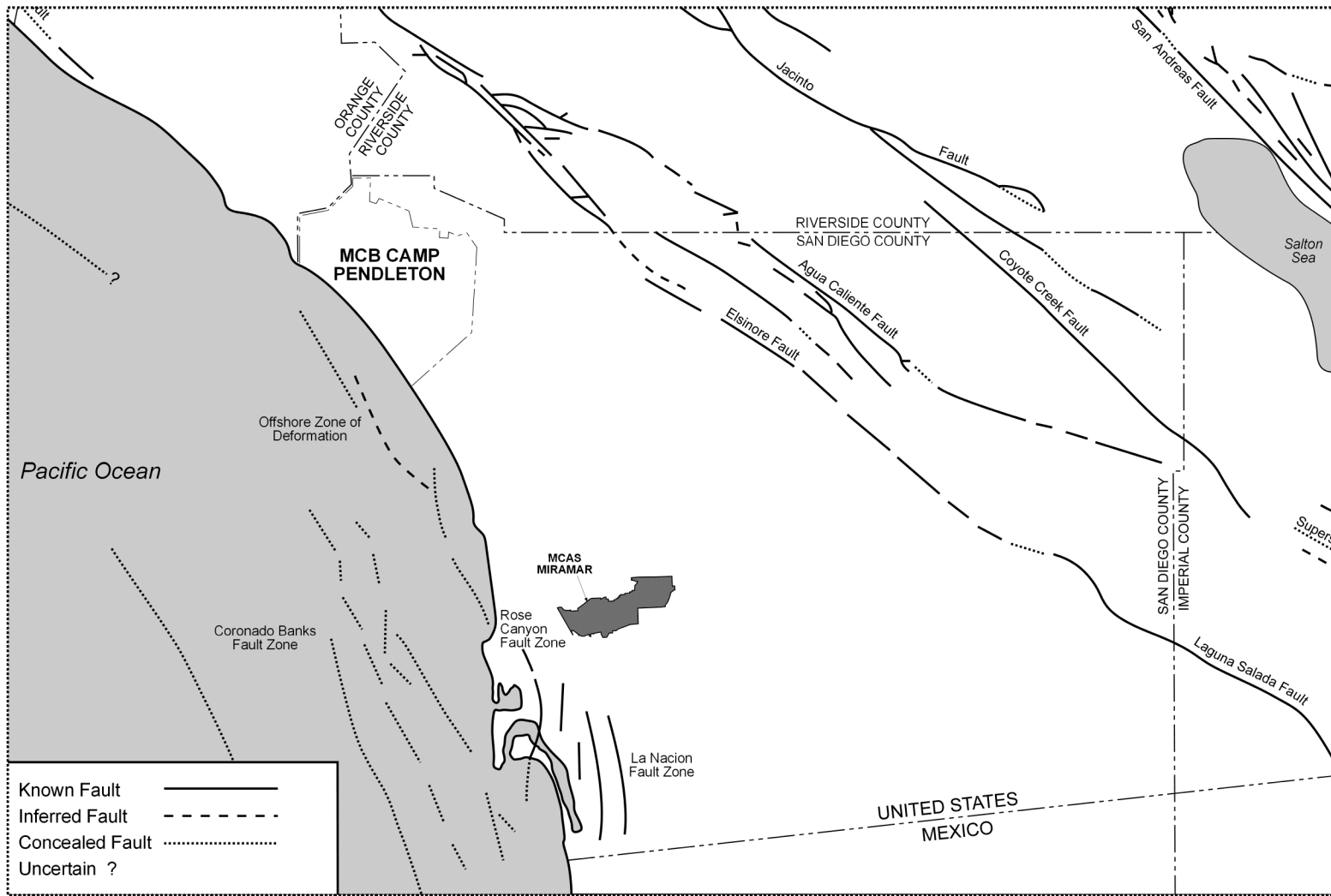
MCAS Miramar lies within the Coastal Plains geographic province. Sites 2 and 4 are located in the western portion of MCAS Miramar, which is relatively flat and consists primarily of rolling hills. The rolling hills are coastal foothills and canyons with slopes ranging from 2 to 50 percent and averaging approximately 40 percent.

The underlying geologic formation in the area of the two alternative sites is the Lindavista formation. These sites encompass gravelly marine terraces (mesas) with areas of terrace escarpment and alluvium. In this area, the Lindavista formation is considered to be Pleistocene (from about 1.6 million years ago to about 11,000 years ago) in age. It was formed under fluctuating estuarine and beach conditions with subsequent uplift. The formation is composed of reddish-brown sandstone and conglomerate and contains marine and fluvial deposits of clay, silt, sandstone, gravel, and boulders (DON 2005).

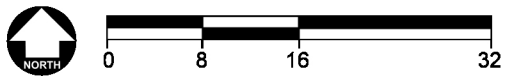
3.8.2 Seismicity

The California Division of Mines and Geology classifies faults as either active or potentially active, according to the Alquist-Priolo Special Studies Zone Act of 1972 (California Division of Mines and Geology 1997). An active fault is one that has shown surface displacement within the Holocene Epoch (the last 11,000 years). The California Division of Mines and Geology suggests that this definition be used to evaluate faults located within a 60-mile (96-kilometer) radius of a project site. A potentially active fault is defined as one that has exhibited surface displacement during the Pleistocene Epoch.

MCAS Miramar is located in a highly active seismic region. Five known active faults are located within a 60-mile (96-kilometer) radius of MCAS Miramar (Figure 3.8-1). However, the area where Sites 2 and 4 are located is not known to be directly underlain by, or within 500 feet (152 meters) of, active or potentially active faults. Although MCAS Miramar is not historically known for major seismic activity, it is rated as having a moderate damage susceptibility related to ground shaking because of its proximity to regional and local fault systems. The nearest



Source: Association of Engineering Geologists 1973



**Figure 3.8-1
 Regional Fault Map**

active faults are the Rose Canyon Fault and Elsinore Fault, located approximately 14 miles (23 kilometers) to the west and 27 miles (43 kilometers) to the northeast, respectively. The La Nacion Fault is considered potentially active and is mapped about 10 miles (16 kilometers) to the south. The Rose Canyon and Elsinore faults, along with other more distant earthquake sources, represent seismic hazards capable of producing strong seismic shaking for MCAS Miramar. Based on mapping by the California Division of Mines and Geology in 1992, the Maximum Credible Earthquake assigned to the Rose Canyon Fault zone and Elsinore Fault could produce peak horizontal accelerations of up to about 0.3 times the acceleration of gravity. Potential seismic hazards are typically reduced by modern building codes incorporating up-to-date earthquake resistant design. For this purpose, all of San Diego County is currently assigned to Uniform Building Code Zone 4.

Ground Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits as a result of earthquake-generated seismic waves, and generally occurs along faults. The MCAS Miramar area is not known to be directly underlain by active or potentially active faults; therefore, no potential hazard due to ground surface rupture exists.

Liquefaction

Liquefaction is the transformation from a solid to a liquid state as a result of increased pore pressure and reduced effective stress from earthquake vibrations. For liquefaction to occur, loose, unconsolidated silts or sands are required to exist at or near the groundwater table. Liquefaction susceptibility is primarily a function of age, density, depth of sediment, and depth to groundwater. Generally, liquefaction susceptibility decreases as the depth to groundwater increases because the normal effective stress acting on saturated sediment is greater (DON 1996). The poorly consolidated and younger alluvium that occupies the canyon areas has a moderate to high potential for liquefaction, while the potential for liquefaction for the remainder of MCAS Miramar is very low due to the relatively well-consolidated and dense nature of the earth materials and the lack of shallow groundwater table.

Landslides

No landslides or landslide-related features have been mapped within the project alternative sites. Therefore, these two sites have no potential hazard from landslide activity.

3.8.3 Topography

The topography of each site will be discussed in this subsection.

Site 2

Two major ravines associated with Rose Canyon are located on this site. One ravine is located in the northwestern portion of the site and the other forms the southern boundary of the site. The remainder of the site is fairly level and developable but the ravines would prevent development on those portions of the site. Surface elevations of Site 2 range from approximately 300 feet (91 meters) to 400 feet (122 meters) AMSL.

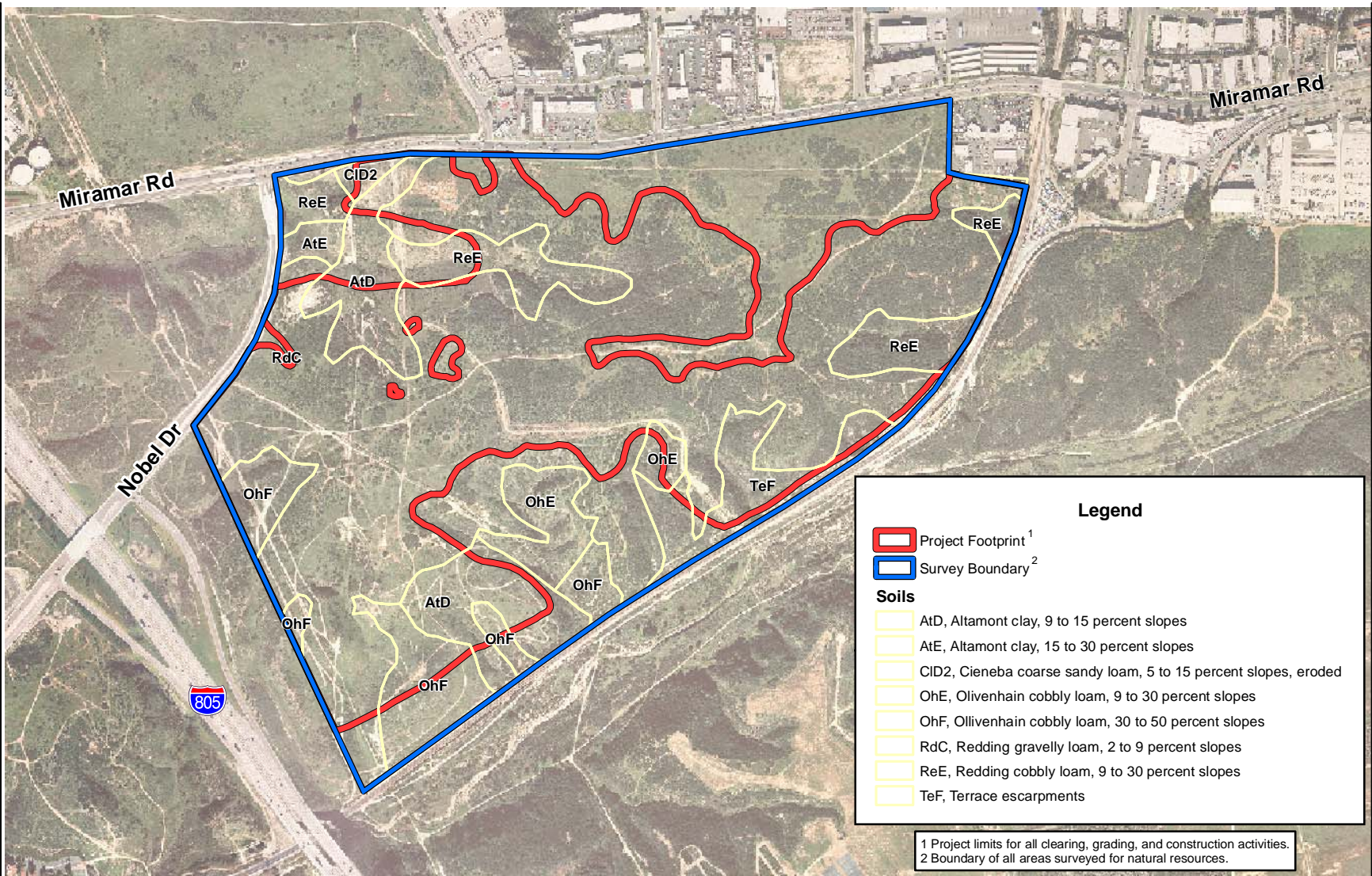
Site 4

Site 4 is a generally flat site due to the disturbance from previous grading for I-15, SR 163, and SR 52. The elevations on the site range from approximately 370 feet (113 meters) to 440 feet (134 meters) AMSL.

3.8.4 Soils

This section will discuss the soil types and characteristics for each soil type within the boundaries of each of the two alternative sites. The soils have been mapped within MCAS Miramar by the U.S. Soil Conservation Service (SCS 1973), which is now known as the U.S. Natural Resources Conservation Service. More than three-quarters of MCAS Miramar soils and the majority of both Sites 2 and 4 are in the Redding group of shallow, cobbly, or gravelly loams that range from 2 to 50 percent slopes. Permeability is very slow due to a hardpan, and fertility is low. Erodibility of the Redding series is considered severe because of shallow depth to rock and, in some cases, steepness. Where these soils are more gently sloping, they form a hummocks topography known as “mima mounds,” which harbor vernal pools and associated Special Status Species.

The soils on the two alternative sites are shown in Figures 3.8-2 and 3.8-3 and summarized in Table 3.8-1. Soil classifications and definitions are summarized in Table 3.8-2.



Source: MCAS Miramar 2004; Eagle Aerial 2004

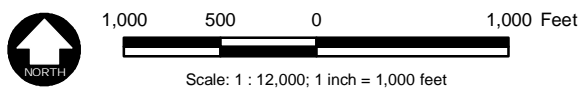
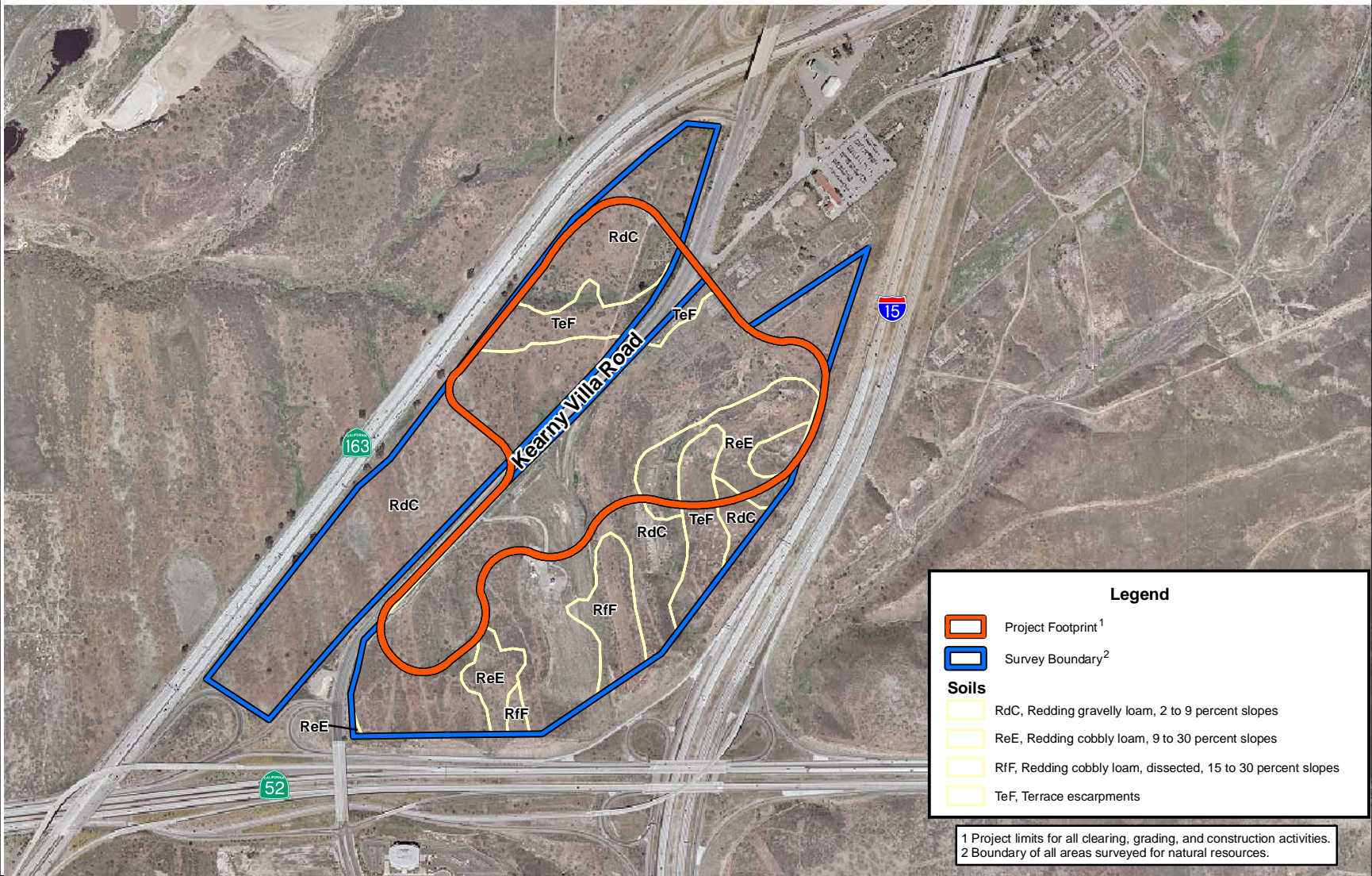




Figure 3.8-2
Site 2 Soils Overview





1 Project limits for all clearing, grading, and construction activities.
 2 Boundary of all areas surveyed for natural resources.



Legend

-  Project Footprint¹
-  Survey Boundary²

Soils

-  RdC, Redding gravelly loam, 2 to 9 percent slopes
-  ReE, Redding cobbly loam, 9 to 30 percent slopes
-  RfF, Redding cobbly loam, dissected, 15 to 30 percent slopes
-  TeF, Terrace escarpments

1 Project limits for all clearing, grading, and construction activities.
 2 Boundary of all areas surveyed for natural resources.

Source: MCAS Miramar 2004; Eagle Aerial 2004



1,000 500 0 1,000 Feet



Scale: 1:12,000; 1 inch = 1,000 feet

Figure 3.8-3
Site 4 Soils Overview

**Table 3.8-1
Soils on Sites 2 and 4**

Soil Type		Site 2	Site 4
Symbol	Name		
AtD	Altamont clay	X	
AtE	Altamont clay	X	
CID2	Cieneba coarse sandy loam	X	
OhE	Olivenhain cobbly loam	X	
OhF	Olivenhain cobbly loam	X	
RdC	Redding gravelly loam	X	X
ReE	Redding cobbly loam	X	X
RfF	Redding cobbly loam		X
TeF	Terrace escarpments	X	X

Source: EDAW 2006

**Table 3.8-2
Soil Classifications and Definitions**

Symbol	Name	Characteristics	On-site Location	Erodibility
AtD	Altamont clay	9 to 15 percent slopes	Site 2 – Small area southeast of Miramar Road/Nobel Drive intersection and in the southern corner of site.	Slight
AtE	Altamont clay	15 to 30 percent slopes	Site 2 – Small area southeast of Miramar Road/Nobel Drive intersection.	Moderate
CID2	Cieneba coarse loam	5 to 15 percent slopes	Site 2 – Small strip in northern area.	Severe
OhE	Olivenhain cobbly loam	9 to 30 percent slopes	Site 2 – Small pockets near southern and eastern boundaries.	Severe
OhF	Olivenhain cobbly loam	30 to 50 percent slopes	Site 2 – Small pockets along southern boundary.	Severe
RdC	Redding gravelly loam	2 to 9 percent slopes	Site 2 – Large portions of the site throughout the central area. Site 4 – Large portions of the site throughout central and western areas.	Severe
ReE	Redding cobbly loam	9 to 30 percent slopes	Site 2 – Pockets in northwestern area and in the northeastern area of the site. Site 4 – Pockets in eastern and southern areas of the site.	Severe
RfF	Redding cobbly loam	-	Site 4 – Small pocket northwest of I-15 and SR 52 interchange.	Severe
TeF	Terrace escarpments	-	Site 2 – Along Rose Canyon in the southern area of the site. Site 4 – Strip across northern area of site.	Severe

Source: U.S. Soil Conservation Service (SCS 1973)

Site 2

Four distinct soils series (Redding, Altamont, Cieneba, and Olivenhain) and eight subphases (RdC, ReE, AtD, AtE, CID2, OhE, OhF, and TeF) have been mapped within Site 2 by the U.S. Natural Resources Conservation Service. The soils mapped within Site 2 primarily include clay and loamy deposits derived from sedimentary bedrock (Figure 3.8-2). The majority of the soils on-site are Redding gravelly loam (RdC throughout the central portion of the site) and Redding cobbly loam (ReE in the eastern and western portions of the site). Other soils on-site include clay (Altamont), coarse loams (Cieneba), cobbly loam (Olivenhain), and terrace escarpments. The majority of the soils on Site 2 are characterized with severe erodibility.

Site 4

Two distinct soils series (Redding and Terrace Escarpments) and four subphases (RdC, ReE, RfF, and TeF) have been mapped within Site 4 by the U.S. Natural Resources Conservation Service. The soils mapped within Site 4 primarily include clay and loamy deposits derived from sedimentary bedrock (Figure 3.8-3). The majority of the soil on-site is Redding gravelly loam (RdC throughout the central portion of the site). Other soils on-site include cobbly loam (Redding) and terrace escarpments. Similar to Site 2, the majority of the soils on Site 4 are characterized with severe erodibility.

3.8.5 Erosion Hazard Ratings

Almost all MCAS Miramar's soils are severely erodible, according to the U.S. Natural Resources Conservation Service, because of either steepness, shallow depth to rock, shallow depth to a hardpan, or excessive silt in surface texture composition. Exceptions are soils of clay-textured types. Also, in many areas numerous soil cobbles reduce erodibility by self-sealing gullies or channels.

3.8.6 Mineral Resources

Stadium Conglomerate, located on portions of MCAS Miramar, is recognized as a significant source of aggregate, and areas underlain by the conglomerate have been designated as Mineral Resource Zone 2 areas by the California Division of Mines and Geology (1992). The Mineral Resource Zone 2 area underlying MCAS Miramar extends from San Clemente Canyon in the south to Kearny Mesa in the north and is a major source of coarse aggregate material. The Hanson Aggregate, /Harris Plant, located north of Site 4, south of the Main Station, and adjacent

to the Miramar Landfill, has been and continues mineral extraction in this area. Stadium Conglomerate has been mined for many years as a source of aggregate in areas west and east of MCAS Miramar.

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3.9 WATER RESOURCES

This section summarizes the hydrology of MCAS Miramar, including surface and groundwater resources and floodplains.

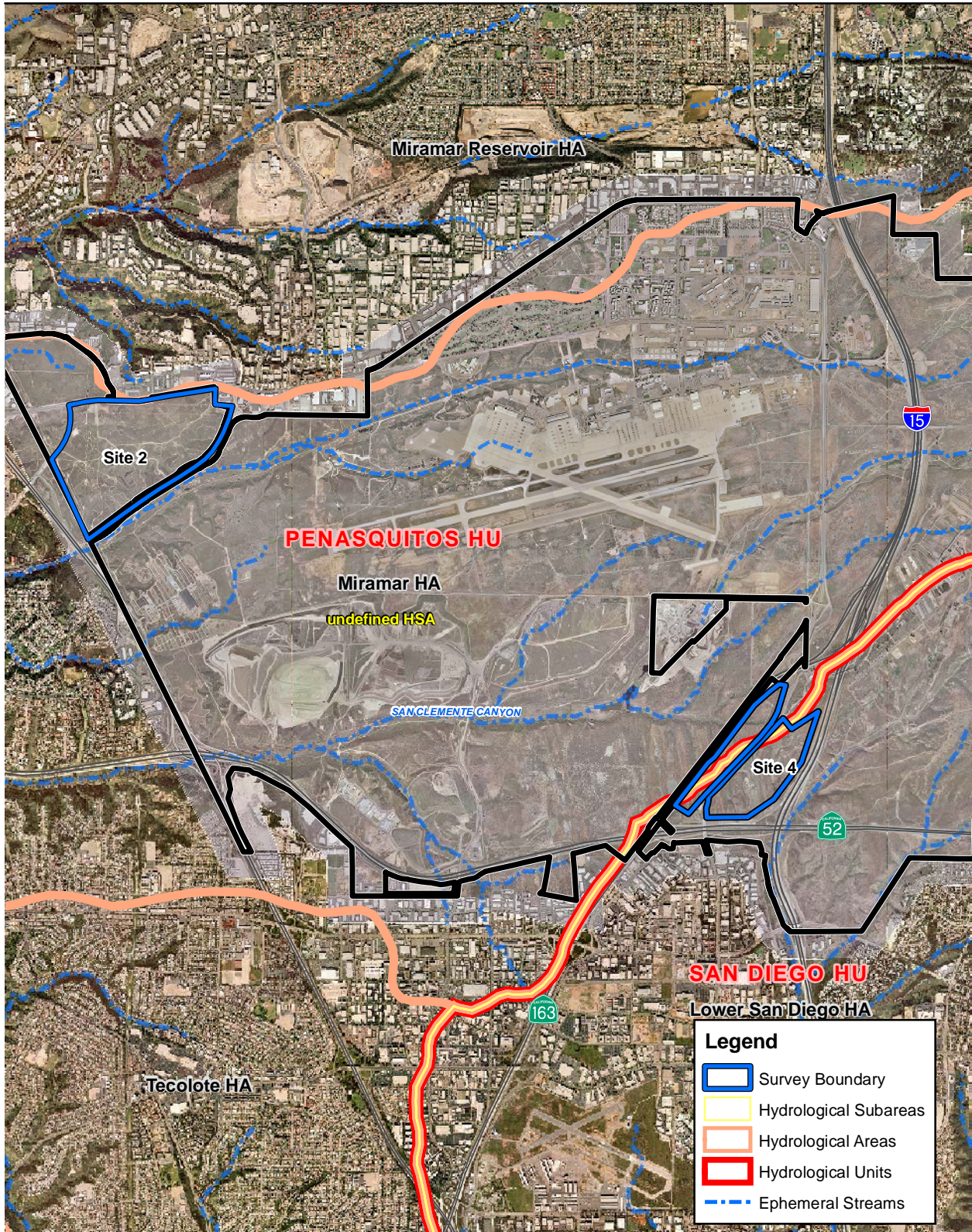
3.9.1 Hydrology

The proposed MCAS Miramar project areas are located within the Peñasquitos and San Diego Hydrologic Units (HUs), as shown in Figure 3.9-1. Site 2 is located entirely within the Miramar Hydrologic Area (HA) of the Peñasquitos HU. The Peñasquitos HU is a triangular-shaped area of approximately 170 square miles (440 square kilometers) extending from Poway on the east to La Jolla on the west. This HU is drained by three principal streams: Los Peñasquitos, San Clemente, and Rose Canyon creeks (Figure 3.9-1). Located in this HU is Miramar Reservoir, a major storage facility that contains imported Colorado River water. Annual precipitation in the unit ranges from 8 inches (20.3 centimeters) along the ocean to 18 inches (45.7 centimeters) inland (Regional Water Quality Control Board [RWQCB] 1994).

Site 4 is divided between the Miramar HA described above and the Mission San Diego Hydrologic Subarea (HSA) of the Lower San Diego HA in the San Diego HU. The San Diego HU is a long triangular-shaped area of approximately 440 square miles (1,140 square kilometers) drained by the San Diego River. El Capitan, San Vicente, Cuyamaca, Jennings, and Murray reservoirs are the major storage facilities. San Vicente, Murray, Jennings, and Murray reservoirs store mainly imported Colorado River water, whereas El Capitan mainly stores local runoff and some Colorado River water. Cuyamaca Reservoir stores only local runoff. Annual precipitation in the unit ranges from less than 11 inches (28 centimeters) at the coast to about 35 inches (89 centimeters) inland. This HSA is drained by Murphy Canyon and Alvarado Canyon creeks and the San Diego River (RWQCB 1994).

3.9.2 Surface Water

MCAS Miramar is located within the coastal plain of San Diego County. Surface elevations of Sites 2 and 4 range from approximately 300 feet to 400 feet (91 to 122 meters) AMSL, and 370 feet to 440 feet (113 to 134 meters) AMSL, respectively. Surface water located in the project areas is associated with vernal pool areas (refer to Section 3.7). MCAS Miramar is primarily located within the San Clemente Canyon and Rose Canyon drainage basins, which converge 3 miles (4.8 kilometers) west of the site. The major streams of the San Clemente and Rose canyons traverse from east to west and intersect several ephemeral drainages that flow in north-



Source: MCAS Miramar 2004; Eagle Aerial 2004; CASIL 2004

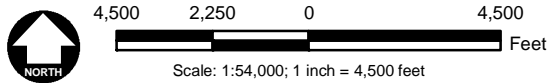


Figure 3.9-1
Sites 2 and 4 Hydrological Features

south-trending canyons. The northeastern portion of MCAS Miramar is located within the Sycamore Canyon drainage basin. Surface water runoff from Site 2 drains primarily into Rose Canyon. Site 4 is divided between two drainage basins; therefore, surface water runoff on the northwestern portion flows westerly into San Clemente Canyon, and the southeastern portion drains south into Murphy Canyon. All drainage occurs via natural topographic gradients and man-made drains.

Investigations of surface water contamination via surface soil and sediment transport have occurred at MCAS Miramar. Various sites were inspected to determine whether any release of hazardous materials had occurred. Surface water samples were collected at discharge points into Rose Canyon, and the results were compared with USEPA Region 9 Preliminary Remediation Goals (PRGs). Their results indicated that contaminant concentrations were below the PRG values in the surface water samples. Therefore, no evidence of surface water quality degradation has been observed to originate from MCAS Miramar (DON 1996).

3.9.3 Groundwater

Groundwater at MCAS Miramar generally occurs in two aquifers: the Quaternary alluvium aquifer and the confined regional aquifer of the Scripps formation. In addition, groundwater potentially occurs in the transient, gravity-controlled system within the Stadium Conglomerate and Linda Vista formation (City of San Diego 1981).

The Quaternary alluvium aquifer occupies San Clemente, Rose, and Sycamore canyons. Tributary groundwater flows toward these canyons and recharges the groundwater table within the alluvium, which occurs at approximately 10 to 25 feet (3.0 to 7.6 meters) below ground surface. This groundwater is permanent. The Quaternary alluvium aquifer is not a significant groundwater basin (RWQCB 1994).

The confined regional aquifer of the Eocene-aged Scripps formation occurs within sand and gravel layers at a depth of approximately 250 feet (76 meters) below ground surface. Groundwater flow direction in this aquifer is predominantly to the west (DON 1991). Aquicludes, which consist of low permeability sandy clays and claystones overlying and confining the groundwater below, occur in the Scripps formation. The resulting hydrostatic pressure on the aquifer is sufficient to raise the groundwater as much as 100 feet (30.5 meters) above the water table (DON 1996).

Aquicludes of the Stadium Conglomerate and the Linda Vista formation overlie the regional aquifer, and the quantity of groundwater is variable and limited. Low annual rainfall, combined with low permeability of the Stadium Conglomerate and low average soil moisture, results in limited groundwater recharge.

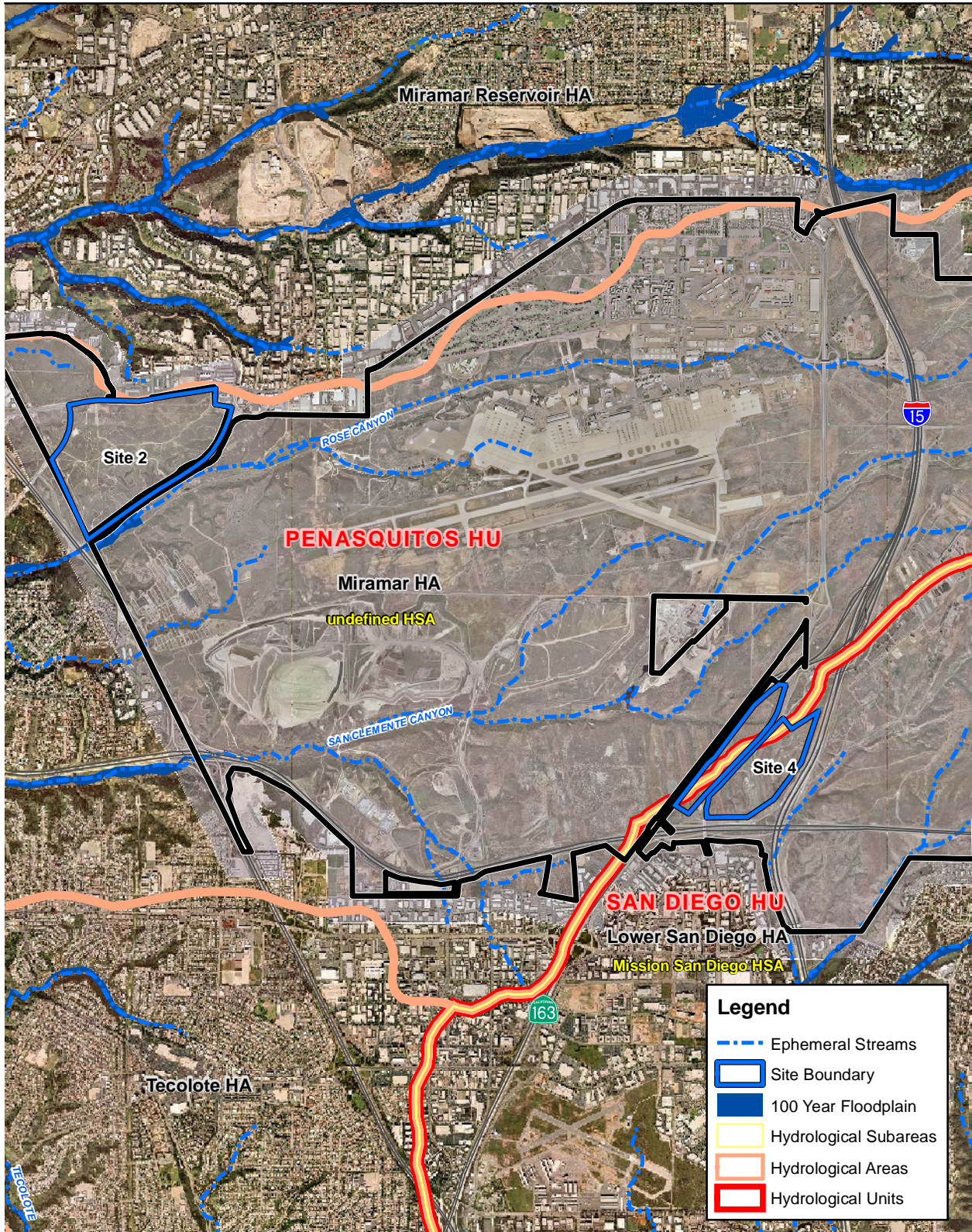
Monitoring wells were installed in proximity to the inactive North Miramar Landfill and Phase 1 of the West Miramar Landfill to comply with California Water Resources Control Board Water Code 13273 to assess potential threats to water quality and to determine whether hazardous waste leakage has occurred. Analytical testing of samples from these wells indicates no semi-volatile organic compounds were detected and no individual metal concentrations exceed the Primary Drinking Water Standards. The results were reported in the Water Quality Solid Waste Assessment Test. Two volatile organic compounds (tetrahydrofurans and toluene) were detected in one well; these compounds are commonly a result of drilling fluids and well glues (Metcalf & Eddy 1991).

Water quality sampling has also been conducted in the zone above the groundwater table at the toe of the Miramar landfills, located south of MCAS Miramar. In sampling locations within the Quaternary alluvium and along the alluvium/Stadium Conglomerate boundary, no volatile organic compounds or leachates were detected (Metcalf & Eddy 1991).

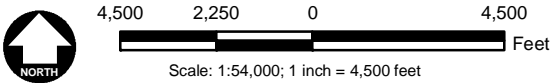
Groundwater within the regional confined aquifer in the Miramar HA has been designated by the RWQCB (1994) as having no existing beneficial uses west of I-15. Groundwater aquifers east of I-15 are designated as having potential municipal and industrial supply use. Groundwater within the Mission San Diego HSA has been designated by the RWQCB as having existing beneficial uses as agricultural supply, industrial service supply, and industrial process supply and has a potential beneficial use as a municipal and domestic supply (RWQCB 1994).

3.9.4 Floodplains

While much of the floodplain area would be constrained by canyon topography, some areas are considered to have significant flooding potential. Federal Emergency Management Agency (FEMA) floodplain maps for 100-year and 500-year flood events have been prepared for only certain portions of San Clemente Canyon, Rose Canyon, and Sycamore Canyon. According to FEMA maps, the 100-year surface elevations in the canyons in the vicinity of MCAS Miramar are less than 250 feet (76 meters) as depicted in Figure 3.9-2.



Source: MCAS Miramar 2004; Eagle Aerial 2004; USGS Blue Line Data 2005; FEMA Q3 Flood Data 1997; CASIL 2004



Legend

- Ephemeral Streams
- Site Boundary
- 100 Year Floodplain
- Hydrological Subareas
- Hydrological Areas
- Hydrological Units

Figure 3.9-2
Sites 2 and 4 Floodplains
and Hydrological Features

Facilities at MCAS Miramar, however, are generally considered to have a low risk of flooding. The areas on-site with the greatest flood potential are located in the western half of the site inside of San Clemente and Rose canyons at less than 250 feet (76 meters) in elevation, well below the ground surface elevation of the two proposed cemetery sites.

3.10 PUBLIC HEALTH AND SAFETY

This section addresses the potential for public exposure to unsafe situations as well as the exposure to hazards associated with hazardous substances resulting from the construction and operation of the cemetery annex to the existing Fort Rosecrans National Cemetery at MCAS Miramar.

3.10.1 Public Safety

Site 2 Alternative (Preferred Alternative)

Munitions and Explosives of Concern

The DON has commissioned several recent investigations to study the presence of munitions and explosives of concern (MEC) and to further characterize potential MEC at MCAS Miramar. The investigations were conducted using available historical records, interviews, and visual inspections. In 1996, the ACOE Rock Island District completed a records search and published their findings in the *Defense Environmental Restoration Program Base Realignment and Closure, Ordnance and Explosives Archives Search Report for Naval Air Station Miramar San Diego, California* (ACOE 1996). This survey was intended to review range issues associated with planned Base Realignment and Closure activities. Subsequent to the Marine Corps relocation to MCAS Miramar in 1997, the ACOE (1996) was augmented by an additional *Final Archive Search Report* and *Final Range Identification and Preliminary Range Assessment, Marine Corps Air Station, Miramar, San Diego, California* (ACOE 2001a and b), prepared by the ACOE, Huntsville Engineering and Support Center. As shown in Figure 3.10-1, up to 25 separate artillery range and impact areas (i.e., range fans) were identified as having used ordnance ranging from small caliber to 155-millimeter howitzers. No artillery ranges or impact areas are located within Site 2.

Electromagnetic Radiation Hazards, Explosive Safety Quantity Distance Arcs, and Accident Potential Zones

Radar and other high-energy electromagnetic emissions can constitute a hazard to persons exposed to radiation above a threshold power density. Electromagnetic signals emanating from communication and other radar equipment can also interfere with and adversely affect stored ordnance and fuel. Electromagnetic radiation hazards occur when transmitting equipment generates sufficient field intensity to:

- cause harmful or injurious effects to humans or wildlife;
- induce or couple currents and/or voltages of magnitudes sufficient to initiate electro-explosive devices in ordnance; or
- create sparks of sufficient magnitude to ignite flammable materials.

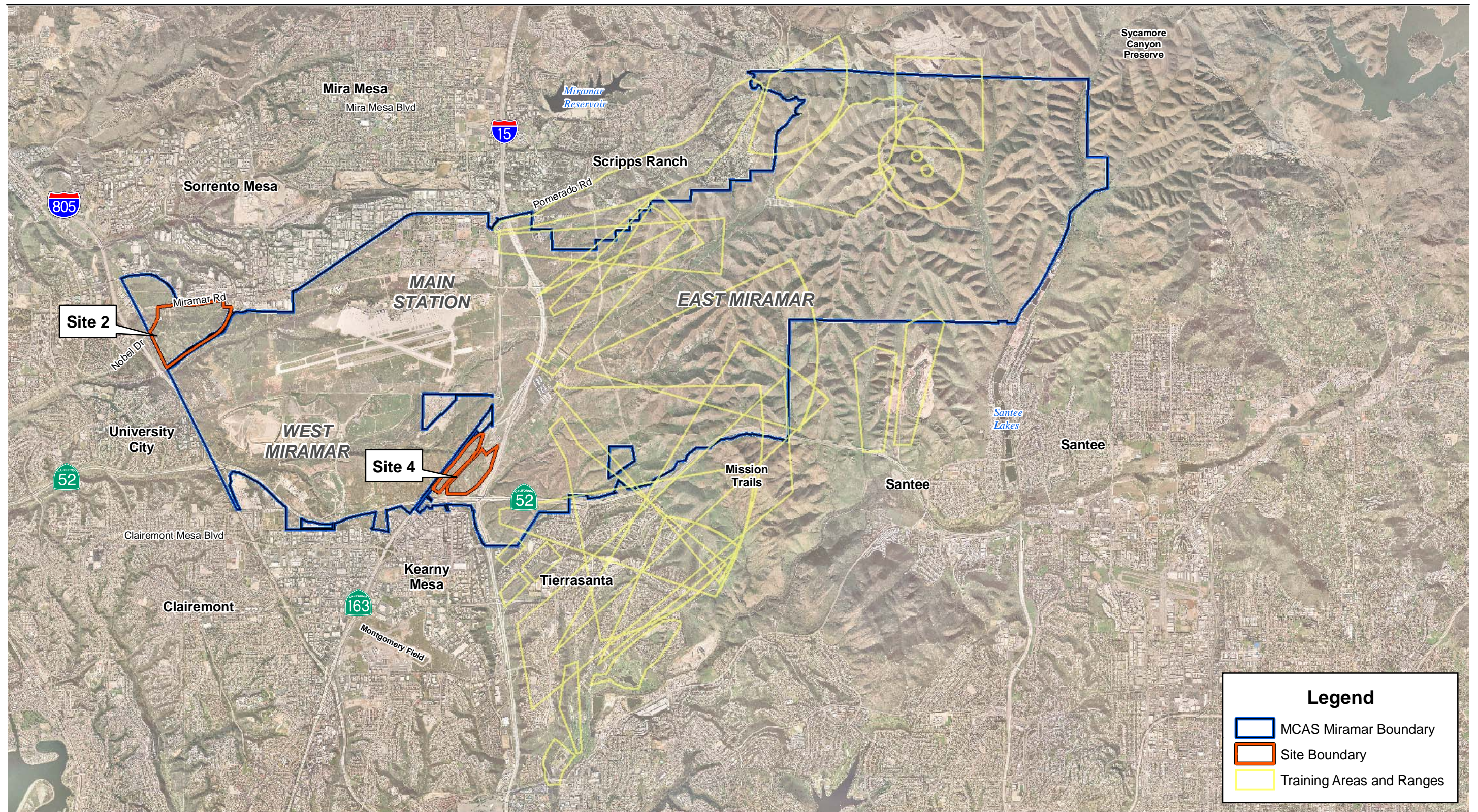
Depending upon the power of the emissions, a minimum distance must be maintained between ordnance equipment and personnel for safety. There are no electromagnetic radiation facilities or hazards on Site 2.

ESQD arcs are the required safety distances between ordnance storage and use facilities or inhabitable areas. Ammunition and bulk explosives are stored in magazines designed, sited, and designated for specific purposes. A storage magazine's ESQD arc is calculated by the type and amount of ordnance stored in the magazine. The DoD Explosives Safety Board establishes quantity-distance requirements and permissible storage capacities. There are no known munitions on Site 2 that would be sensitive to electromagnetic radiation and there are no ESQD arcs in the Site 2 area (MCAS Miramar 2000).

The DoD established the AICUZ program in 1973 to effectively plan for land use compatibility in areas surrounding military air installations. The purposes of the AICUZ program are to minimize public exposure to potential safety hazards associated with aircraft operations and to protect the operational capability of the air installation. In addition to noise, heights, and obstruction criteria, the AICUZ program includes analysis of airfield APZs. The purpose of defining APZs is to delineate recommended surrounding land uses for the protection of persons and property on the ground. Rather than addressing the probability of accidents occurring, APZs define the areas that would more likely be affected if an accident were to occur. Portions of the Site 2 Alternative are within APZs I and II and within a height restriction area (Figure 3.10-2).

Small Arms Operational Ranges

There is an existing pistol range complex at MCAS Miramar, located east of I-15 (Figure 3.10-3). The existing pistol range complex or its surface danger zone (SDZ) does not affect the Site 2 Alternative. A recently certified pistol and rifle range is located in the northeast portion of East Miramar; the new range or its SDZ does not affect the Site 2 Alternative.



Legend

- MCAS Miramar Boundary
- Site Boundary
- Training Areas and Ranges

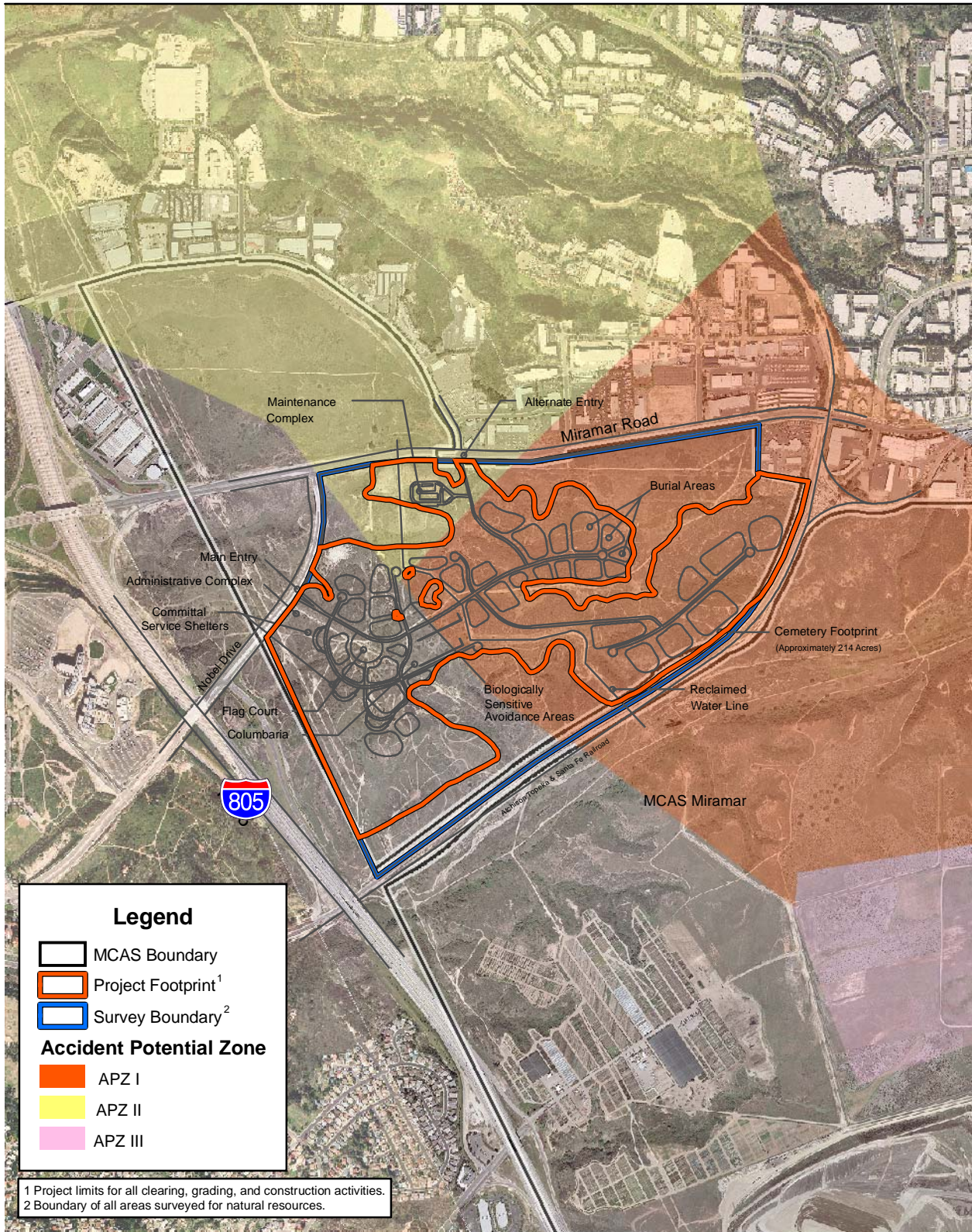
Source: USGS; DON 2002.

6,500 0 6,500
Feet

Scale: 1 : 76,000; 1 inch = 6,500 Feet

Figure 3.10-1
MCAS Miramar Artillery Ranges and Impact Areas

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Source: MCAS Miramar 2005; Eagle Aerial 2004

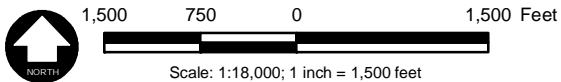
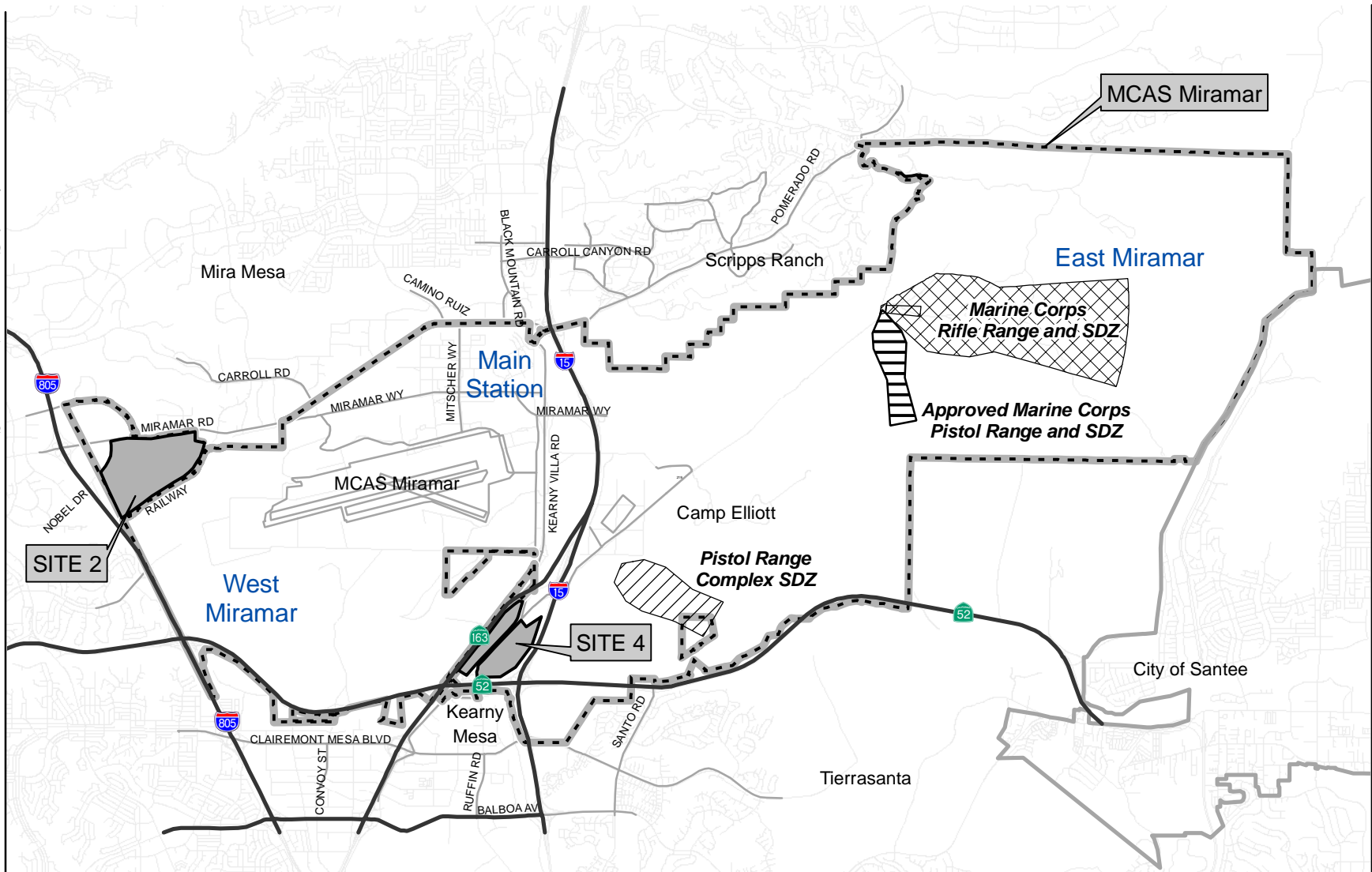
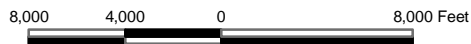


Figure 3.10-2
Accidental Potential Zones
Site 2



Sources: SANDAG, SanGIS, DON 2000d



Scale: 1:96,000; 1 inch = 8000 feet

Figure 3.10-3
MCAS Miramar Existing Pistol Range and
Surface Danger Zones

Hazardous Wastes, Substances, and Materials

Hazardous substances are those substances defined as hazardous by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 USC § 6901 et seq., and the Resource Conservation and Recovery Act, 42 USC § 6901 et seq., as amended. Hazardous substances include but are not limited to hazardous materials as defined under Section 25501 and hazardous wastes defined under 24117 of the California Health and Safety Code, respectively.

No known hazardous waste storage areas, storage tanks, hazardous waste release sites, or hazardous substances or materials exist within the Site 2 Alternative. The site is predominantly undisturbed, and there is no record of previous development. Radon is not a concern at this site.

Hazardous materials are stored and used, and hazardous wastes generated in other areas of MCAS Miramar, primarily within the Main Station. MCAS Miramar's Installation Restoration Program (IRP) is a DON program for the evaluation and cleanup of sites where past Navy or Marine Corps practices resulted in the contamination of soils, groundwater, or other media by hazardous substances. An Initial Assessment Study to identify areas of contamination was initially conducted in 1984. Since that time, the IRP has performed ongoing response actions to investigate the release of hazardous substances, pollutants, and contaminants into the environment and selecting and implementing appropriate remedial and removal actions addressing such releases. There are 18 identified IRP sites on MCAS Miramar. Eleven of the sites have been closed because cleanup action is unnecessary or removal has already been conducted. There are seven active Installation Restoration sites on MCAS Miramar. None of these sites is within the Site 2 Alternative.

Site 4 Alternative

Munitions and Explosives of Concern

Portions of Site 4 (Figure 3.10-1) have been identified as being part of the historical California Post Camp Kearny. This Post was established 18 July 1917, and was named in honor of Brigadier General Stephen Watts Kearny who led the Army of the West to San Diego in 1846. It was 1 of 32 new camps created in May 1917; each was designed to house 40,000 troops with 1,200 buildings and tents on 10,000 acres (4,047 hectares). Camp Kearny has been identified as an artillery camp and after the war was used as a demobilization center. Historic use of this area

indicates artillery use; however, due to development in this area and range assessments, no artillery ranges or impact areas have been identified within Site 4 (Figure 3.10-1).

Electromagnetic Radiation Hazards, Explosive Safety Quantity Distance Arcs, and Accident Potential Zones

There are no known munitions within Site 4 that would be sensitive to electromagnetic radiation. There are no electromagnetic radiation hazards or ESQD arcs on Site 4 (MCAS Miramar 2000).

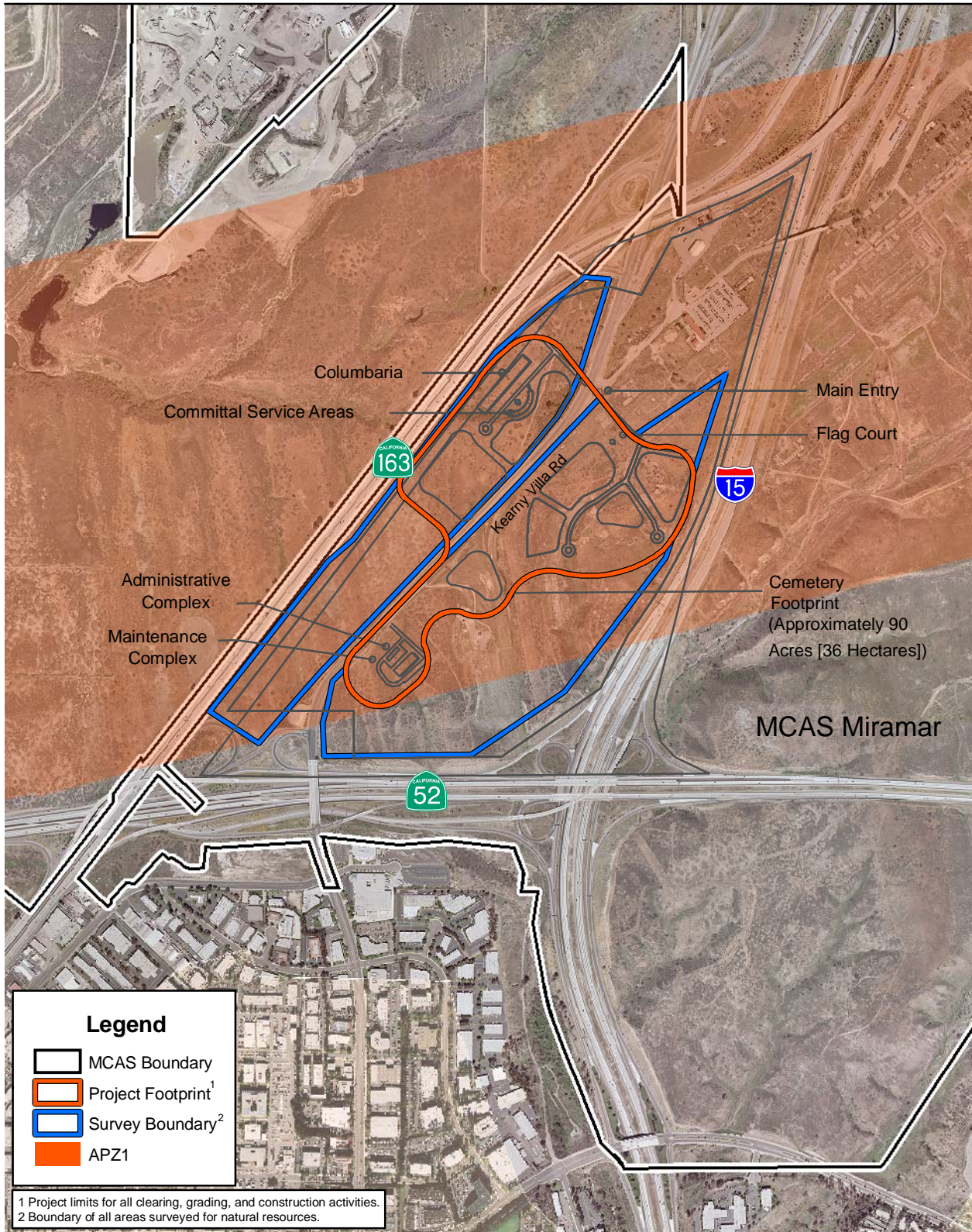
As discussed above under the Site 2 Alternative, APZs have been delineated for MCAS Miramar. Portions of Site 4 are within APZ I and a height restriction area (Figure 3.10-4).

Small Arms Operational Ranges

The existing pistol ranges complex at MCAS Miramar or its SDZ is not located near Site 4.

Hazardous Wastes, Substances, and Materials

No known hazardous waste storage areas, storage tanks, hazardous waste release sites, or hazardous substances or materials exist within the Site 4 Alternative. The site is predominantly undisturbed, and no previous development exists. Radon is not a concern at this site. No Installation Restoration sites are within the Site 4 Alternative area.



Source: MCAS Miramar 2005; Eagle Aerial 2004

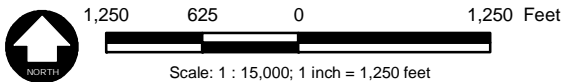


Figure 3.10-4
Accidental Potential Zones
Site 4

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3.11 TRAFFIC/CIRCULATION

This section will summarize the existing traffic conditions that form the baseline for the Proposed Action. A detailed traffic analysis was prepared by Kimley-Horn and Associates and is included in Appendix B.

The traffic conditions to be discussed will be local intersections, roadway segments, and freeway segments. These highway facilities are rated for their ability to process traffic volumes. The terminology “level of service” is used to provide a “qualitative” evaluation based on certain “quantitative” calculations. The rating is based on a system established by the 2000 *Highway Capacity Manual* published by the Transportation Research Board.

Level of service (LOS) for intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. The delay is stated in terms of the average control delay per vehicle. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay. Table 3.11-1 shows the various intersection LOS.

**Table 3.11-1
Level of Service (LOS) Criteria for Intersections**

LOS	Description
A	Operations with very low delay and most vehicles do not stop.
B	Operations with good progression but with some restricted movement.
C	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	Operations where there is significant delay, extensive queuing, and poor progression.
F	Operations that are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Notes:

(a) 2000 Highway Capacity Manual, Chapter 16, Page 2, Exhibit 16-2

Within San Diego, all signalized and unsignalized intersections are expected to operate at LOS D or better.

Roadway segments are evaluated on the capacity and LOS. The City of San Diego developed Table 3.11-2 as a reference. The traffic volumes under LOS E as shown in this table are considered at the capacity of the roadway segment.

**Table 3.11-2
City of San Diego Roadway Segment Capacity and Level of Service**

Road		Level of Service (LOS)				
Class	Lanes	A	B	C	D	E
Freeway	8	60,000	84,000	120,000	140,000	150,000
Freeway	6	45,000	63,000	90,000	110,000	120,000
Freeway	4	30,000	42,000	60,000	70,000	80,000
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Minor Arterial	4	15,000	21,000	30,000	35,000	40,000
Collector	4	10,000	14,000	20,000	25,000	30,000
Collector (No center lane)	4					
(Continuous left-turn lane)	2	5,000	7,000	10,000	13,000	15,000
Collector (No fronting property)	2	4,000	5,500	7,500	9,000	10,000
Collector (Commercial/Industrial fronting)	2	2,500	3,500	5,000	6,500	8,000
Collector (Multi-family)	2	2,500	3,500	5,000	6,500	8,000
Sub-Collector (Single family)	2	---	---	2,200	---	---

Notes:

The volumes and the average daily LOS listed above are only intended as a general planning guideline.

LOS are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. LOS normally apply to roads carrying through traffic between major trip generators and attractors.

Source: City of San Diego Traffic Impact Study Manual, July 1998.

Caltrans District 11 developed Table 3.11-3 to evaluate freeway segment LOS. This evaluation is based on a comparison of the peak hour traffic volume to the peak hour freeway capacity.

Congestion Management Program (CMP) Arterial Analysis

Implementation of the Congestion Management Program (CMP) in San Diego County requires enhanced capacity analysis for all facilities comprising the CMP network that are impacted by large projects. A large project is defined as any project that generates at least 2,400 daily trips or 200 peak-hour trips. CMP facilities are potentially impacted, and enhanced capacity analysis is triggered, when the project adds 50 directional peak-hour trips to street segments, intersections,

**Table 3.11-3
Level of Service Criteria for Freeway Segment Analysis**

LOS	Congestion/Delay	Traffic Description
A	None	Free flow
B	None	Free to stable flow, light to moderate volumes
C	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted
D	Minimal to substantial	Approaches unstable flow, heavy volumes, and very limited freedom to maneuver
E	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor
F ₀	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go
F ₁	Severe 1-2 hour delay	Very heavy congestion, very long queues
F ₂	Very severe 2-3 hour delay	Extremely heavy congestion, very long queues
F ₃	Extremely severe 3+ hours of delay	Gridlock

Notes:

Based on the 1992 Caltrans guidelines.

and/or freeway mainlines. Miramar Road is designated as a CMP; however, since the Proposed Action is not considered a large project based on its trip generation, arterial analysis was not conducted for Miramar Road in this EIS.

Existing Traffic Conditions

This section summarizes the existing roadway circulation network, peak-hour traffic volumes, and operations at the study intersections and also roadway and freeway segments for the two alternative sites.

3.11.1 Site 2 Alternative (Preferred Alternative)

Site 2 is located south of Miramar Road, southeast of Nobel Drive, and east of I-805 (Figure 3.11-1).

Intersection Analysis

The study intersections that were chosen for analysis represented primary ingress/egress to and from the project site and the surrounding community. The study intersections selected for analysis are shown in Table 3.11-4.

**Table 3.11-4
Study Intersections**

Intersection	Traffic Control (a)
Site 2	
1 I-805 Southbound On-Ramp @ Nobel Dr.	Signal
2 I-805 Northbound Off-Ramp @ Nobel Dr.	Signal
3 Nobel Dr. @ Miramar Rd.	Signal
4 Eastgate Mall @ Miramar Rd.	Signal
5 Nobel Dr. @ Main Entrance (b)	Signal
Site 4	
6 Kearny Villa Rd. @ SR 52 Eastbound Ramps	Signal
7 Kearny Villa Rd. @ SR 52 Westbound Ramps	TWSC
8 Kearny Villa Rd. @ SR 163 Northbound Off-Ramp/I-15 Northbound On-Ramp	Signal
9 Kearny Villa Rd. @ SR 163 Southbound Off-Ramps	TWSC
10 Kearny Villa Rd. @ Main Entrance (b)	Signal

Notes:

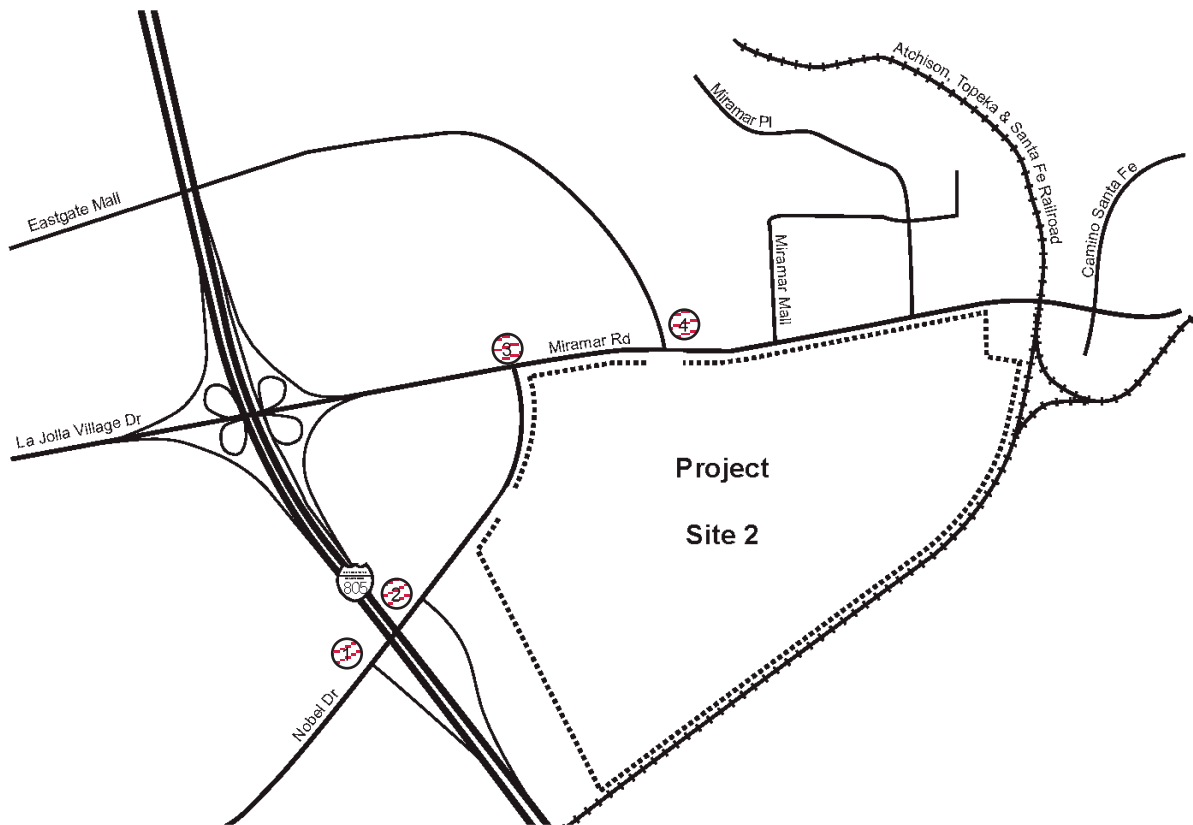
- (a) Signal = Traffic signal, TWSC = Two-Way Stop-Control
- (b) Intersections do not currently exist but will be created as part of the Proposed Action and serve as the main entrance to each respective site.

As shown in Table 3.11-4, intersections 1 through 5 are in the project vicinity of Site 2 and intersections 6 through 10 are in the project vicinity of Site 4. The Site 4 Alternative will be discussed later in this section. It should be noted that intersections 5 and 10 do not currently exist but will be constructed as part of the Proposed Action and serve as the main entrance to each site, respectively. Figure 3.11-1 displays the location of the study intersections within the vicinity of Site 2 and the existing geometrics of these intersections.

Figure 3.11-2 illustrates the existing peak-hour traffic volumes at the study intersections and the existing Average Daily Traffic (ADT) volumes along the roadway and freeway segments of Site 2. The peak-hour intersection turning movements at all study area intersections and ADT volumes were collected in June 2005 by Traffic Data Services Southwest.

Table 3.11-5 displays the LOS analysis results for the study intersections under existing conditions. As shown in the table, all intersections operate at an acceptable LOS during both peak periods except for the intersection at Eastgate Mall/Miramar Road, which is LOS E during the PM peak hour.

I-805 SB-On Ramp/ Nobel Dr	I-805 NB-Off Ramp/ Nobel Dr	Miramar Rd/ Nobel Dr	Miramar Rd/ Eastgate Mall



Legend:

Signalized Right-turn overlap

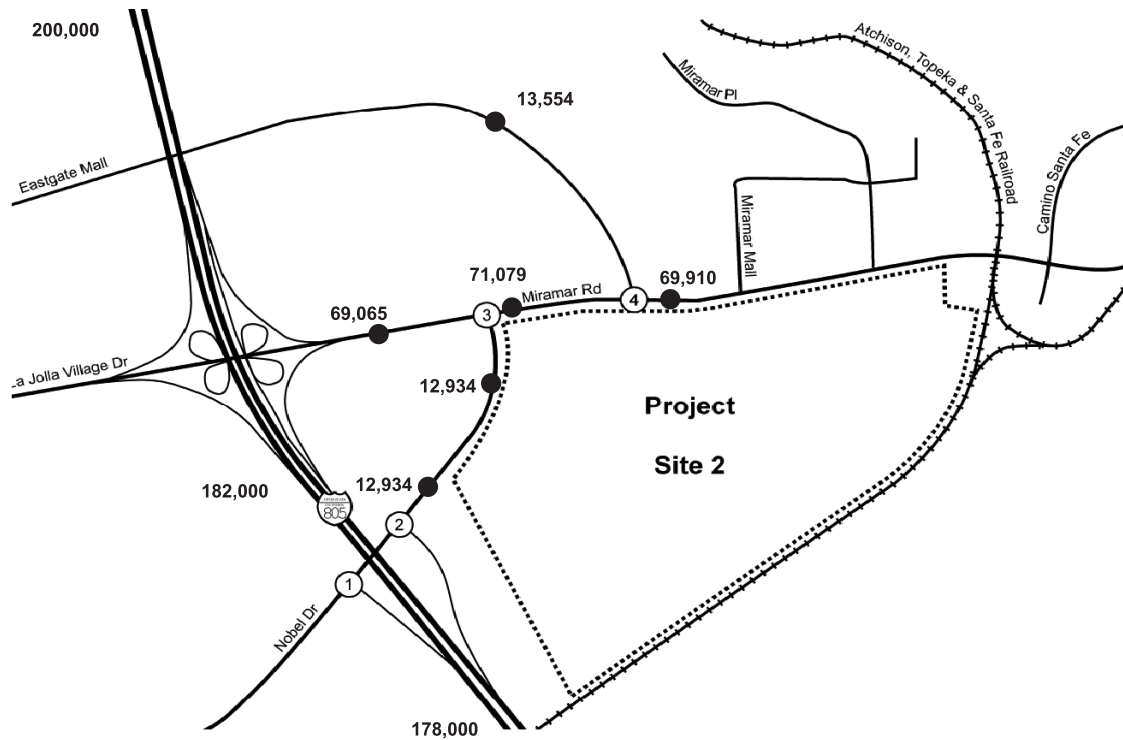
Source: Kimley-Horn and Associates Inc.



Not to Scale

Figure 3.11-1
Site 2
Existing Intersections and Intersection Geometrics

<p>1</p> <p>← 468/818 84/305 Nobel Dr</p> <p>287/214 → 454/390 → I-805 SB On-ramp</p>	<p>2</p> <p>← 220/571 Nobel Dr</p> <p>286/200 → I-805 NB Off-ramp</p> <p>331/534 ↗ 521/266 ↘</p>	<p>3</p> <p>← 1774/2734 148/510 Miramar Rd</p> <p>2049/1292 → 50/39 → Nobel Dr</p> <p>67/65 ↗ 779/355 ↘</p>	<p>4</p> <p>164/364 ↘ 120/532 ↘ Eastgate Mall</p> <p>461/115 ↘ 1762/2962 ↘ Miramar Rd</p> <p>290/134 ↗ 2543/1553 →</p>
---	--	---	--



Legend

X/Y = AM / PM PEAK HOUR
TURNING VOLUMES

● - AVERAGE DAILY TRAFFIC

Source: Kimley-Horn and Associates Inc.



Figure 3.11-2
Existing Intersection Peak-Hour Traffic Volumes
and ADT Volumes for Site 2 Alternative

Table 3.11-5
Existing Conditions
Peak Hour Intersection Level of Service Summary

INTERSECTION		PEAK HOUR	EXISTING	
			DELAY (a)	LOS (b)
SITE 2				
1	Nobel Dr. & I-805 Southbound On-Ramp	AM	2.3	A
		PM	2.8	A
2	Nobel Dr. & I-805 Northbound Off-Ramp	AM	5.8	A
		PM	6.9	A
3	Miramar Rd. & Nobel Dr.	AM	14.6	B
		PM	11.0	B
4	Miramar Rd. & Eastgate Mall	AM	13.0	B
		PM	57.0	E
SITE 4				
6	SR 52 Eastbound Off-Ramp & Kearny Villa Rd.	AM	26.2	C
		PM	28.0	C
7	SR 52 Westbound Ramps & Kearny Villa Rd.	AM	139.7	F
		PM	ECL	F
8	SR 163 Northbound Off-Ramp & Kearny Villa Rd.	AM	15.2	B
		PM	11.4	B
9	SR 163 Southbound Ramp & Kearny Villa Rd.	AM	22.2	C
		PM	26.0	D

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 6.0.

Road Network

The following provides a description of the existing street system within the vicinity of the Site 2 Alternative. Locations where the existing functional classification is different than the ultimate classification will be noted.

Miramar Road is an east-west circulation element roadway classified as 6-lane prime arterial within the study area. Miramar Road between Nobel Drive and Eastgate Mall and just west of Nobel Drive is divided by a raised median; all other segments along Miramar Road within the study area are divided by a painted median. Sidewalks are provided on both sides of the

roadway, and parking is not allowed. Miramar Road is currently built to its ultimate classification and it is listed in the CMP.

Nobel Drive is an east-west circulation element roadway classified as 6-lane major road within the study area. Nobel Drive is divided by a raised median. Sidewalks are provided on both sides of the roadway, and parking is not allowed. Nobel Drive is currently built to its ultimate classification.

Eastgate Mall is an east-west circulation element roadway classified as 2-lane collector road within the study area. Eastgate Mall is divided by a double-yellow centerline. Sidewalks are provided on both sides of the roadway, and parking is allowed. At its eastern terminus, Eastgate Mall extends in a north-south direction and forms a T intersection at Miramar Road.

Table 3.11-6 displays the roadway segments analyzed along with the existing roadway classifications, capacity, and existing ADT and LOS for both Sites 2 and 4. As shown in the table, all roadway segments for the Site 2 area function at an acceptable LOS except for the following segments:

- Miramar Road between I-805 Northbound Ramps to Miramar Mall (LOS F)
- Eastgate Mall north of Miramar Road (LOS F)

In the project vicinity of Site 2, both Miramar Road and Eastgate Mall carry traffic volumes greater than their respective roadway capacities. However, Nobel Drive is currently not being utilized to its potential capacity and functions at an acceptable LOS A.

Freeway Segments

The existing freeway volumes were provided by Caltrans and the counts were collected in 2003. Table 3.11-7 displays the freeway segment analysis under existing conditions for Sites 2 and 4. Also shown are the number of lanes, capacity, ADT, peak hour volume, and LOS. As shown in Table 3.11-7 for Site 2, the following freeway segments operate at LOS E or worse during the peak periods:

- I-805 between Governor Drive and Nobel Drive (LOS F0 in both peak periods)
- I-805 between Nobel Drive and Miramar Road (LOS F0 in both peak periods)
- I-805 between Miramar Road and Mira Mesa Boulevard (LOS F0 in both peak periods)

**Table 3.11-6
Existing Conditions
Roadway Segment Level of Service Summary**

Roadway Segment	Roadway Classification (a)	LOS E Capacity	ADT (B)	LOS
SITE 2				
Miramar Rd.				
I-805 Northbound Ramps to Nobel Dr.	6 Lanes Prime Arterial	60,000	69,065	F
Nobel Dr. to Eastgate Mall	6 Lanes Prime Arterial	60,000	71,079	F
Eastgate Mall to Miramar Mall	6 Lanes Prime Arterial	60,000	69,910	F
Nobel Dr.				
Miramar Rd. to Site 2 Access	6 Lanes Major Arterial	50,000	12,943	A
Site 2 Access to I-805 Northbound Off-Ramp	6 Lanes Major Arterial	50,000	12,943	A
Eastgate Mall				
North of Miramar Rd.	2 Lanes Collector (commercial-industrial fronting)	8,000	13,554	F
SITE 4				
Kearny Villa Rd.				
Harris Plant Rd. to SR 163 Southbound Ramps	4 Lanes Major Arterial	40,000	19,625	B
SR 163 Northbound Ramps to Proposed Project Driveway	4 Lanes Collector	30,000	15,516	C
Proposed Project Driveway to SR 52 Westbound Ramps	4 Lanes Collector	30,000	15,516	C
SR 52 Eastbound Ramps to Ruffin Rd.	4 Lanes Major Arterial	40,000	22,271	C

Notes:

Bold values indicate roadway segments operating at LOS E or F.

(a) Existing roads street classification is based on the adopted community plans and on field observations.

(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by Traffic Data Service Southwest and measured in June 2005.

**Table 3.11-7
Existing Conditions
Freeway Segment Analysis Summary**

FREEWAY SEGMENT	DIRECTION	NUMBER OF LANES	CAPACITY (a)	ADT (b)	PEAK-HOUR VOLUME (c)	LOS
AM PEAK						
SITE 2						
I-805						
Governor Dr. to Nobel Dr.	NB	4 M	8,000	200,000	9,409	F0
	SB	4 M	8,000			
Nobel Dr. to Miramar Rd.	NB	4 M	8,000	182,000	9,409	F0
	SB	4 M	8,000			
Miramar Rd. to Mira Mesa Blvd.	NB	4 M	8,000	178,000	9,409	F0
	SB	4 M	8,000			
SITE 4						
I-15						
SR 163 to Miramar Way	NB	4 M + 1 ML	9,600	290,000	12,344	F1
	SB	4 M + 1 ML	9,600			
SR 52						
Convoy St. to SR 163	WB	3 M	6,000	122,000	6,019	E
	EB	3 M	6,000			
SR 163 to Kearny Villa Rd.	WB	3 M	6,000	95,000	6,790	F0
	EB	3 M	6,000			
Kearny Villa Rd. to I-15	WB	3 M	6,000	72,000	6,035	E
	EB	3 M	6,000			
I-15 to Santo Rd.	WB	3 M	6,000	90,000	5,035	D
	EB	3 M	6,000			
SR 163						
I-15 to Kearny Villa Rd.	NB	4 M	8,000	134,000	8,852	F0
	SB	4 M + 1 A	9,200			
Kearny Villa Rd. to SR 52	NB	4 M	8,000	142,000	8,852	F0
	SB	5 M	10,000			
PM PEAK						
SITE 2						
I-805						
Governor Dr. to Nobel Dr.	NB	4 M	8,000	200,000	8,651	F0
	SB	4 M	8,000			
Nobel Dr. to Miramar Rd.	NB	4 M	8,000	182,000	8,651	F0
	SB	4 M	8,000			
Miramar Rd. to Mira Mesa Blvd.	NB	4 M	8,000	178,000	8,651	F0
	SB	4 M	8,000			
SITE 4						
I-15						
SR 163 to Miramar Way	NB	4 M + 1 ML	9,600	290,000	12,600	F1
	SB	4 M + 1 ML	9,600			
SR 52						
Convoy St. to SR 163	WB	3 M	6,000	122,000	5,477	D
	EB	3 M	6,000			
SR 163 to Kearny Villa Rd.	WB	3 M	6,000	95,000	6,543	F0
	EB	3 M	6,000			
Kearny Villa Rd. to I-15	WB	3 M	6,000	72,000	7,099	F0
	EB	3 M	6,000			

FREEWAY SEGMENT	DIRECTION	NUMBER OF LANES	CAPACITY (a)	ADT (b)	PEAK-HOUR VOLUME (c)	LOS
I-15 to Santo Rd.	WB	3 M	6,000	90,000	6,747	F0
	EB	3 M	6,000			
SR 163						
I-15 to Kearny Villa Rd.	NB	4 M	8,000	134,000	6,854	C
	SB	4 M + 1 A	9,200			
Kearny Villa Rd. to SR 52	NB	4 M	8,000	142,000	6,854	C
	SB	5 M	10,000			

Notes:

Bold values indicate freeway segments operating at LOS E or F.

M=Main Lane; A= Auxiliary Lane; ML=Managed Lane.

(a) The capacity is calculated as 2,000 ADT per Mainline, 1,600 ADT per HOV lane, 1,600 ADT per ML and 1,200 ADT per auxiliary lane (M: Mainline, A: Aux., HOV: High Occupancy Vehicle, ML: Managed Lanes
Ex. 4M+2A=4 Mainline + 2 Aux)

(b) Average Daily Traffic volumes provided by Caltrans

(c) Existing Peak Hour volumes provided by Caltrans

3.11.2 Site 4 Alternative

Site 4 is located in a triangular area bounded by SR 163 to the west, SR 52 to the south, and I-15 to the east. Kearny Villa Road bisects the site north to south (Figure 3.11-3).

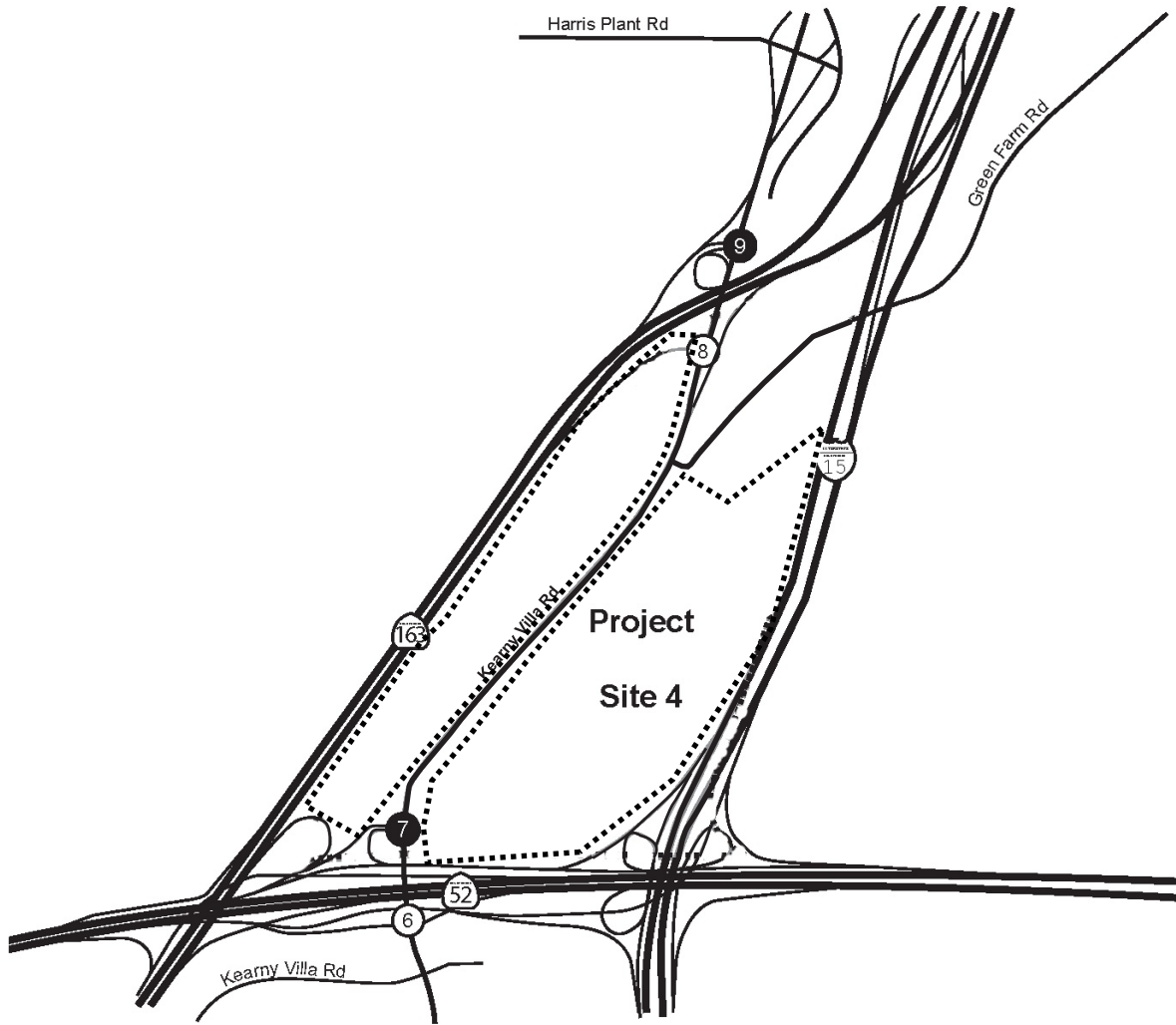
Intersection Analysis

The intersections analyzed for this analysis are included in Table 3.11-4. Figure 3.11-3 displays the location of the study intersections within the vicinity of Site 4 and the existing geometrics of these intersections.

Figure 3.11-4 illustrates the existing peak-hour traffic volumes at the study intersections and the existing ADT volumes along the roadway and freeway segments of Site 4. The peak-hour intersection turning movements at all study area intersections and ADT volumes were collected in June 2005 by Traffic Data Services Southwest.

Table 3.11-5 displays the LOS analysis results for the study intersections existing conditions. As shown in the table, all intersections operate at an acceptable LOS during both peak periods except for the intersection of Kearny Villa Road at SR 52 Westbound Ramps, which operate at LOS F for the AM and PM peak hours.

SR-52 EB-Off Ramp/ Kearny Villa Rd	SR-52 WB Ramps/ Kearny Villa Rd	SR-163 NB-Off Ramp/ Kearny Villa Rd	SR-163 SB Ramps/ Kearny Villa Rd



Legend:

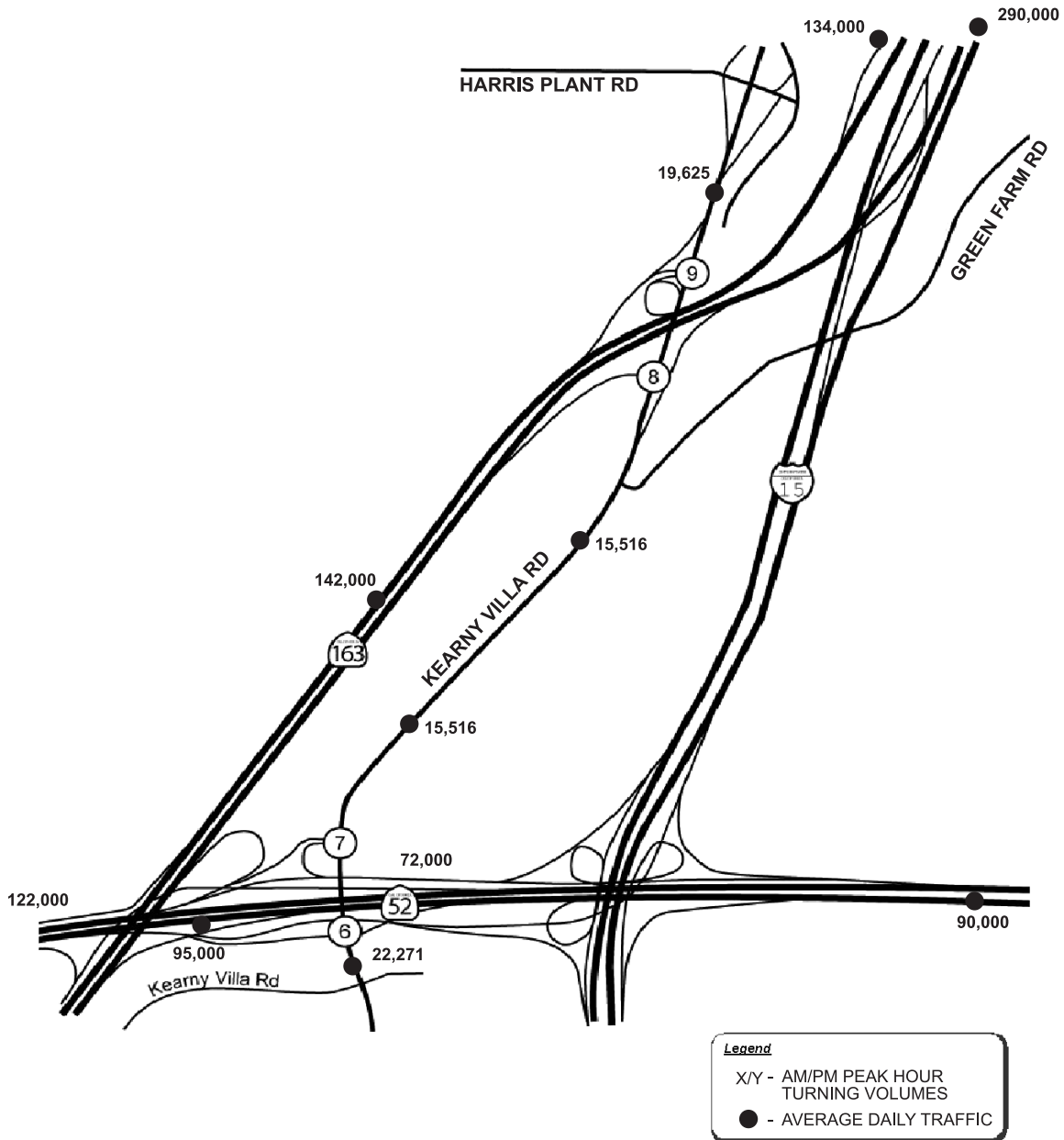
- Signalized
- Right-turn overlap
- Unsignalized

Source: Kimley-Horn and Associates, Inc.

NORTH
Not to Scale

Figure 3.11-3
Site 4
Existing Intersections and Intersection Geometrics

6	↓ 916/642 ↓ 58/370 Kearny Villa Rd SR-52 EB Off-ramp 189/148 ↗ 1/1 → 602/194 ↘	SR-52 EB On-ramp 400/1312 ↖ 56/276 ↖	7	↓ 13/31 ↓ 554/932 Kearny Villa Rd SR-52 WB Off-ramp 195/28 ↗ 406/79 ↘ 154/762 ↖ 433/914 ↖	8	↓ 584/937 ↓ 30/43 Kearny Villa Rd SR-163 NB Off-ramp 955/509 ↗ 7/2 ↘ 552/662 ↖ 116/350 ↖	I-15 NB On-ramp 12/0 ↗ 157/58 ↘	9	↓ 709/1388 ↓ 467/909 Kearny Villa Rd SR-163 Ramps 3/27 ↗ 1483/1071 ↗
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Source: Kimley-Horn and Associates Inc.



Figure 3.11-4
Existing Intersection Peak-Hour Traffic Volumes
and Existing ADT Volumes for Site 4

Road Network

The following provides a description of the existing street system within the vicinity of the project study area. Locations where the existing functional classification is different than the ultimate classification will be noted.

Kearny Villa Road is a north-south circulation element roadway classified as a 4-lane major road within the study area. Kearny Villa Road between SR 52 Eastbound Ramps and Ruffin Road and north of SR 163 Ramps is divided by a raised median. (Between SR 52 Eastbound Ramps and the SR 163 Ramps, Kearny Villa Road functions as a collector since it is divided by a painted median). Sidewalks are only provided between SR 52 Eastbound Ramps and Ruffin Road along the east side of the roadway and parking is not allowed.

Table 3.11-6 displays the roadway segments analyzed along with the existing roadway classifications, capacity, and existing ADT and LOS for Site 4. As shown in the table, all roadway segments operate at an acceptable LOS.

Freeway Segments

The existing freeway volumes were provided by Caltrans and the counts were collected in 2003. Table 3.11-7 displays the freeway segment analysis under existing conditions for Site 4. Also shown are the number of lanes, capacity, ADT, peak hour volume, and LOS. As shown in Table 3.11-7, for Site 4 the following freeway segments operate at LOS E or worse during the peak periods:

- I-15 between SR 163 and Miramar Way (LOS F1 in both peak periods)
- SR 52 between Convoy Street and SR 163 (LOS E in the AM peak hour)
- SR 52 between SR 163 and Kearny Villa Road (LOS F0 in both peak periods)
- SR 52 between Kearny Villa Road and I-15 (LOS E in the AM peak hour, LOS F0 in the PM peak hour)
- SR 52 between I-15 and Santo Road (LOS F0 in the PM peak hour)
- SR 163 between I-15 and Kearny Villa Road (LOS F0 in the AM peak hour)
- SR 163 between Kearny Villa Road and SR 52 (LOS F0 in the AM peak hour)

It should be noted that the only freeway segments that operate at an acceptable LOS are both segments on SR 163 during the PM peak hour, the segment of SR 52 between I-15 and Santo Road during the AM peak hour and the segment of SR 52 between Convoy Street and SR 163 during the PM peak hour, which operate between LOS C and D.

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3.12 AIR QUALITY

3.12.1 Air Basin Climate and Meteorology

MCAS Miramar is located in the San Diego Air Basin (SDAB), which is contiguous with San Diego County. The climate of San Diego County is characterized by warm, dry summers and mild, wet winters. One of the main determinants of the climatology is a semi permanent high-pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high-pressure cell maintains clear skies for much of the year. When the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms are brought into the region, causing widespread precipitation. In San Diego County, the months of heaviest precipitation are November through April, averaging about 9 to 14 inches (0.22 to 0.36 meter) annually. The mean temperature is 62.2°F(16.8°C), and the mean maximum and mean minimum temperatures are 75.7°F (42.3°C) and 48.5°F (9.2°C), respectively.

The Pacific High also influences the wind patterns of California. The predominant wind directions at the alternative sites are westerly and west-southwesterly during all four seasons, and the average annual wind speed is 5.6 miles per hour (mph) (9.0 kilometers per hour [kph]).

A common atmospheric condition known as a temperature inversion affects air quality in San Diego. During an inversion, air temperatures get warmer rather than cooler with increasing height. Subsidence inversions occur during the warmer months (May through October) as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the layers of air represents a temperature inversion that traps pollutants below it. The inversion layer is approximately 2,000 feet (610 meters) AMSL during the months of May through October. During the winter months (November through April), the temperature inversion is approximately 3,000 feet (914 meters) AMSL. Inversion layers are important elements of local air quality because they inhibit the dispersion of pollutants, thus resulting in a temporary degradation of air quality.

3.12.2 Applicable Regulations, Plans, and Policies

Federal and State Ambient Air Quality Standards

Criteria Pollutants

The Federal Clean Air Act (CAA) (42 USC § 7401) requires the adoption of National Ambient Air Quality Standards (NAAQS) to protect the public's health, safety, and welfare from known or anticipated effects of air pollution. The NAAQS have been updated occasionally. Current standards are set for sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), suspended particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and lead. These pollutants are collectively referred to as criteria pollutants. The State of California Air Resources Board (CARB) has established additional standards that are generally more restrictive than the NAAQS. Federal and state standards are shown in Table 3.12-1.

Toxic Air Contaminants

Air quality regulations also focus on hazardous air pollutants, which are also called toxic air contaminants (TACs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.12-1). The USEPA and CARB have ongoing programs to identify and regulate TACs. Among the many substances identified as TACs are asbestos, lead, and diesel exhaust particulates. Regulation of TACs is generally through statutes and rules that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. Asbestos and lead have been identified for many years and there are established rules and procedures to prevent dispersion and inhalation of these substances. The control of diesel particulate emissions is a very active current concern of regulatory agencies at all levels. According to the 2006 California Almanac of Emissions and Air Quality (CARB 2006a), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

**Table 3.12-1
National and California Ambient Air Quality Standards**

Pollutant	Averaging Time	NAAQS ¹		CAAQS ²	
		Primary ³	Secondary ⁴	Concentration ⁵	
Ozone (O ₃) ⁶	1-Hour	-	Same as	0.09 ppm (180 µg/m ³)	
	8-Hour	0.08 ppm (157 µg/m ³)	Primary Standard	0.070 ppm (137 µg/m ³) ⁹	
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m ³)	None	9.0 ppm (10 mg/m ³)	
	1-Hour	35 ppm (40 mg/m ³)		20 ppm (23 mg/m ³)	
Nitrogen Dioxide (NO ₂)	Annual Average	0.053 ppm (100 µg/m ³)	Same as Primary Standard	0.030 ppm (56 µg/m ³) ¹⁰	
	1-Hour	-		0.25 0.18 ppm (470 338µg/m ³) ¹⁰	
Sulfur Dioxide (SO ₂)	Annual Average	0.03 ppm (80 µg/m ³)	-	-	
	24-Hour	0.14 ppm (365 µg/m ³)	-	0.04 ppm (105 µg/m ³)	
	3-Hour	-	0.5 ppm (1300 µg/m ³)	-	
	1-Hour	-	-	0.25 ppm (655 µg/m ³)	
Suspended Particulate Matter (PM ₁₀) ⁷	24-Hour	150 µg/m ³	Same as Primary Standard	50 µg/m ³	
	Annual Arithmetic Mean	Revoked		20 µg/m ³	
Fine Particulate Matter (PM _{2.5}) ⁸	24-Hour	35 µg/m ³	Same as Primary Standard	-	
	Annual Arithmetic Mean	15 µg/m ³		12 µg/m ³	
Lead (Pb)	30-Day Average	-	-	1.5 µg/m ³	
	Calendar Quarter	1.5 µg/m ³	Same as Primary Standard	-	
Hydrogen Sulfide (H ₂ S)	1-Hour	No Federal Standards		0.03 ppm (42 µg/m ³)	
Sulfates (SO ₄)	24-Hour			25 µg/m ³	
Visibility Reducing Particles	8-Hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70 percent.	
	Vinyl chloride ⁹			24 Hour	0.01 ppm (26 µg/m ³)

¹ NAAQS (other than O₃, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

² California Ambient Air Quality Standards for O₃, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, PM₁₀, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

³ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

⁴ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

⁵ Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

⁶ On June 15, 2005 the 1-hour ozone standard was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (those areas do not yet have an effective date for their 8-hour designations). Additional information on federal ozone standards is available at <http://www.epa.gov/oar/oaqps/greenbk/index.html>.

⁷ Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the USEPA revoked the annual PM₁₀ standard on December 17, 2006.

⁸ Effective, December 17, 2006, the USEPA lowered the PM_{2.5} 24-hour standard from 65 µg/m³ to 35 µg/m³.

⁹ The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

¹⁰ The Nitrogen Dioxide ambient air quality standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after regulatory changes are submitted and approved by the Office of Administrative Law, expected later this year.

ppm = parts per million; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter
Source: USEPA 2007; CARB 2007b.

Clean Air Act – General Conformity

The CAA requires each state to develop, adopt, and implement a State Implementation Plan (SIP) to achieve, maintain, and enforce federal air quality standards throughout the state. SIP documents are developed on a pollutant-by-pollutant basis whenever one or more air quality standards are being violated. Local governments and air pollution control districts have had the primary responsibility for developing and adopting the regional elements of the California SIP.

The 1990 Amendments to CAA Section 176 require the USEPA to promulgate rules to ensure that federal actions conform to the appropriate SIP. These rules, known together as the General Conformity Rule (40 CFR §§ 51.850-.860 and 40 CFR §§ 93.150-.160) require any federal agency responsible for an action in an area designated as nonattainment or maintenance to determine that the action conforms to the applicable SIP or that the action is exempt from the General Conformity Rule requirements. This means that federally supported or funded activities will not (1) cause or contribute to any new air quality standard violation, (2) increase the frequency or severity of any existing standard violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. Actions would conform to an SIP and be exempt from a conformity determination if an applicability analysis shows that the total direct and indirect emissions from the project construction and operation activities would be less than specified emission rate thresholds, known as *de minimis* limits, and that the emissions would be less than 10 percent of the area emission budget.

Marine Corps policy and procedures for compliance with the General Conformity Rule are provided in MCO P5090.2A, Environmental Compliance and Protection Manual, Chapters 6 and 12 (U.S. Marine Corps 1998).

Regional Standards

In San Diego County, the San Diego Air Pollution Control District (APCD) is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies. Included in the APCD's tasks are the monitoring of air pollution, the preparation and implementation of the San Diego County portion of the SIP, and the promulgation of APCD Rules and Regulations. The SIP includes strategies and tactics to be used to attain and maintain acceptable air quality in the county; this list of strategies is called the Regional Air Quality Strategy.

The Rules and Regulations include procedures and requirements to control the emission of pollutants and prevent significant adverse impacts. Two Rules are of interest for the Proposed Action:

- Rule 51, Nuisance, states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.
- Rule 1501, Conformity of General Federal Actions, seeks to assure that federal agencies do not take or support actions that are in any way inconsistent with efforts of the San Diego APCD.

3.12.3 Regional and Local Air Quality

Specific geographic areas are classified as either “attainment” or “nonattainment” areas for each pollutant based on the comparison of measured data with federal and state standards. If an area is redesignated from nonattainment to attainment, the CAA requires a revision to the SIP, called a maintenance plan, to demonstrate how the air quality standard will be maintained for at least 10 years.

The SDAB currently meets the federal standards for all criteria pollutants except O₃ and meets state standards for all criteria pollutants except O₃, PM_{2.5}, and PM₁₀. On 15 April 2004, the USEPA issued the initial designations for the 8-hour O₃ standard, and the SDAB is classified as “basic” nonattainment. Basic is the least severe of the six degrees of O₃ nonattainment. The APCD submitted an 8-hour ozone attainment plan for San Diego county to CARB in 2007 for inclusion into the SIP; that demonstrates how the 8-hour O₃ standard will be attained by 2009 (APCD 2004). The attainment plan was approved by CARB on May 24, 2007 and subsequently submitted to the EPA and is awaiting approval. The SDAB currently falls under a federal “maintenance plan” for CO, following a 1998 redesignation as a CO attainment area.

The SDAB is currently classified as a state “serious” O₃ nonattainment area and a state nonattainment area for PM₁₀ and PM_{2.5}.

Ambient air pollutant concentrations in the SDAB are measured at 10 air quality monitoring stations operated by the APCD. Table 3.12-2 summarizes representative air quality data for MCAS Miramar from the Overland Avenue monitoring station, located approximately 4.4 miles (7.1 kilometers) southeast of Site 2 and 1.2 miles (1.9 kilometers) southwest of Site 4.

No ambient monitoring data are available for diesel PM because no routine measurement method currently exists. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available. Diesel PM poses the greatest health risk among these 10 TACs mentioned.

The CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. Based on receptor modeling techniques, the CARB estimated the diesel PM health risk in 2000 to be 420 excess cancer cases per million people in the SDAB for a 70-year exposure. While the health risk from diesel PM is lower than the estimated statewide value, it is comparable to the annual averages estimated for other urbanized areas such as the Sacramento Valley and San Joaquin Valley Air Basins. Since 1990, the diesel PM's health risk in the SDAB has been reduced by 52 percent. Overall, levels of most TACs have gone down since 1990 except for *para*-dichlorobenzene and formaldehyde (CARB 2006a).

Sources of Regional and Local Pollution

Regional Sources

Table 3.12-3 shows the estimated quantities of pollutant emissions in the SDAB in 2005. The most significant regional sources of PM₁₀ and PM_{2.5} are construction, demolition and dust from vehicle use on paved and unpaved roads, which accounted for 66 percent of the estimated emissions in San Diego County. Coarser particles are directly emitted from activities that disturb the soil, including entrained dust from travel on paved and unpaved roads, construction, mining, and agricultural operations. Other sources include wind-blown dust, pollen, salts, brake dust, and tire wear. Combustion sources such as vehicles, diesel engines, and industrial facilities also emit PM₁₀ and PM_{2.5}. The most significant regional sources of O₃, NO₂, and CO are

**Table 3.12-2
Ambient Air Quality Summary, San Diego–Overland Avenue Monitoring Station**

Pollutant	Averaging Time	Federal Primary Standards	California Air Quality Standards	Maximum Concentrations ⁽¹⁾					Number of Days Exceeding Federal Standard ⁽²⁾					Number of Days Exceeding State Standard ⁽²⁾				
				2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
Ozone	1 hour	0.12 ppm ⁽³⁾	0.09 ppm	0.112	0.107	0.105	0.084	0.108	0	0	0	0	0	3	2	6	0	1
	8 hour	0.08 ppm	none	0.090	0.083	0.087	0.068	0.091	1	0	2	0	1	–	–	–	–	–
Nitrogen Dioxide	1 hour	none	0.25 ppm	0.080	0.084	0.085	0.076	0.091	–	–	–	–	–	0	0	0	0	0
	Annual	0.053 ppm	none	0.019	0.018	0.017	0.018	0.017	0	0	0	0	0	–	–	–	–	–
PM ₁₀ ⁽⁴⁾⁽⁵⁾	24 hours	150 µg/m ³	50 µg/m ³	80	280	44	44	42	0	6.1	0	0	0	0	12.3	0	0	0
	Annual	50 µg/m ³	none	25	28.5	24.4	22.3	22.5	0	0	0	0	0	–	–	–	–	–
	Annual	Revoked	20 µg/m ³	24.5	29	24.9	22.4	22.6	–	–	–	–	–	1	1	1	1	1
PM _{2.5} ⁽⁵⁾	24 hours	35 µg/m ³	none	36.5	170.2	28.5	29.0	26.3	0	1	0	0	0	–	–	–	–	–
	Annual	15 µg/m ³	12 µg/m ³	12.9	11.9	10.9	*	11	0	1	0	*	0	*	*	0	*	0

“–” = data not available or applicable.

“*” = there were insufficient data to determine the value.

- (1) Concentration units for ozone, carbon monoxide, and nitrogen dioxide are in parts per million (ppm). Concentration units for PM₁₀ and PM_{2.5} are in micrograms per cubic meter (µg/m³).
- (2) For annual standards, a value of 1 indicates that the standard has been exceeded.
- (3) The federal 1-hour ozone standard was revoked in June 2005.
- (4) PM₁₀ data are recorded separately for federal and state purposes because the USEPA and California methods are slightly different. Federal values are shown. PM₁₀ is measured every 6 days; the number of days exceeding standards is projected to a 365-day base from the measurements.
- (5) Very high values of PM₁₀ and PM_{2.5} in 2003 were due to wildfires that occurred in October 2003.

Source: CARB 2006c

automobiles and other on-road vehicles. O₃ is formed by the reaction of reactive organic gases (ROG)² and oxides of nitrogen (NO_x), which are combustion products from gas and diesel engines. Other important sources of ROG are paints, coatings, and process solvents.

Table 3.12-3
2005 Estimated Annual Average Emissions - San Diego Air Basin

	Annual Emissions – Tons per year					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Stationary Sources	20,039	9,235	3,176	146	2,811	2,373
Areawide Sources	13,980	10,220	986	73	34,128	8,067
Mobile Sources	34,201	323,901	70,883	4,526	4,563	3,833
Natural Sources	27,777	50,224	1,533	475	5,074	4,307
Total	95,995	393,580	76,614	5,256	46,611	18,579

Source: CARB 2006d

CARB data are provided in tons per day.

Table 3.12-4 shows the forecast quantities of pollutant emissions in the SDAB in 2020. Compared with 2005, significant reductions in ROG, NO_x, and CO emissions are forecast for on-road and off-road vehicles, while there would be increases in emissions from stationary and areawide sources.

Table 3.12-4
2020 Forecast Annual Average Emissions - San Diego Air Basin

	Annual Emissions – Tons per year					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Stationary Sources	27,850	12,082	4,453	183	4,052	3,504
Areawide Sources	16,024	10,877	1,022	73	40,004	9,344
Mobile Sources	18,615	175,529	52,706	11,242	5,512	4,636
Natural Sources	27,777	50,224	1,533	475	5,074	4,307
Total	90,301	248,675	59,714	12,009	54,641	21,791

Source: CARB 2006d

CARB data are provided in tons per day.

² Reactive organic gases are also identified as volatile organic compounds (VOC). In this EIS, the term ROG is used.

Emissions near the Proposed Sites

Criteria Pollutants

The principal sources of emissions near Site 2 are vehicles on I-805, Nobel Drive, and Miramar Road and diesel engines on the freight and passenger trains that use the railroad tracks at the southern site boundary. The principal sources of emissions near Site 4 are vehicles on SR 163, SR 52, Kearny Villa Road, and I-15. Pollutants are also emitted from jet aircraft that fly over Sites 2 and 4; these emission sources were observed during site visits on 11 January 2006.

Toxic Pollutants

Sources of toxic pollutants within 0.25 mile (0.4 kilometer) of a proposed development are typically identified for potential impact. Sources within that distance of Site 2 are commercial auto service stations and repair facilities on the north side of Miramar Road, and the industries south of Miramar Road near the railroad tracks. There are some commercial or light industrial facilities south of SR 52 that would be within 0.25 mile (0.4 kilometer) of the south end of Site 4. The military facilities on MCAS Miramar that are potential sources of toxic pollutants all are more than 0.25 mile (0.4 kilometer) from either Site 2 or Site 4.

Odors

During visits to Sites 2 and 4 on 11 January 2006, no offensive odors were detected.

Sensitive Air Quality Receptors

Sensitive receptors are those populations that are more susceptible to the effects of air pollution than the population at large. Sensitive receptors in proximity to localized sources of toxics and CO are of particular concern. Sensitive receptors include long-term health-care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. For air quality analysis, sensitive receptors within 0.25 mile (0.4 kilometer) of a site are typically identified.

The nearest sensitive receptors to Site 2 are the multi-family homes west of I-805 and north of Nobel Drive, approximately 0.6 mile (1.0 kilometer) west of the proposed site. These residences are located on Toscana Way and Toscana Drive in the Renaissance neighborhood. Residential facilities within MCAS Miramar are more than 1.5 miles (2.4 kilometers) east of Site 2.

There are no sensitive receptors within 0.5 mile (0.8 kilometer) of Site 4. Residences and the Vista Grande Elementary School in the Tierrasanta community, south of SR 52 and west of Santo Road, are approximately 1.0 mile (1.6 kilometers) to the southeast. Residences in the Scripps Ranch community, south of Pomerado Road and east of I-15, are approximately 3.3 miles (5.4 kilometers) to the northeast. Residential facilities within MCAS Miramar are more than 1.5 miles (2.4 kilometers) north of Site 4.

3.13 NOISE

3.13.1 Noise Terminology

Noise is generally defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment. Most of the sounds we hear do not consist of a single frequency, but rather, a broad band of frequencies differing in sound level. The intensities of each frequency add to generate sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting system that reflects the fact that the human ear is not equally sensitive to all frequencies within the sound spectrum. Human hearing is less sensitive at low frequencies and extremely high frequencies than at mid-range frequencies. Therefore, a method called “A-weighting” is used to filter noise frequencies that are not audible to the human ear.

Noise levels are usually measured and expressed in decibels (dB). All sound levels discussed in this section are A-weighted and therefore are called the A-weighted sound level (dBA). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling a traffic volume, would increase the noise level by 3 dBA; a halving of the energy would result in a 3 dBA decrease. Typical noise levels for common outdoor and indoor activities are shown in Table 3.13-1.

Although the dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of frequencies from distant sources, which create a relatively steady background noise in which no particular source is identifiable. Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq} , or the equivalent noise level for that period of time. The period of time average may be specified; $L_{eq(3)}$ would be a 3-hour average; when no period is specified, a 1-hour average is assumed. Construction noise standards are usually stated as average noise levels over a period of 1, 8, or 12 hours.

**Table 3.13-1
Typical Noise Levels**

Common Outdoor Activities	Noise Level dBA	Common Indoor Activities
Jet Fly-over at 1,000 feet (300 meters)	--110--	Rock Band
Gas Lawn Mower at 3 feet (1 meter)	--100--	
Diesel Truck at 50 feet (15 meters), at 50 mph (80 km/hr)	--90--	Food Blender at 3 feet (1 m) Garbage Disposal at 3 feet (1 meter)
Noisy Urban Area, Daytime	--80--	Vacuum Cleaner at 10 feet (3 meters)
Gas Lawn Mower, 100 feet (30 meters)	--70--	Normal Speech at 3 feet (1 meter)
Commercial Area	--60--	Large Business Office
Heavy Traffic at 300 feet (90 meters)	--50--	Dishwasher Next Room
Quiet Urban Daytime	--40--	Theater, Large Conference Room (Background)
Quiet Urban Nighttime	--30--	Library
Quiet Suburban Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
Quiet Rural Nighttime	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans 1998

Noise standards for land use compatibility have been established by various agencies and jurisdictions and in California are usually stated in terms of the Community Noise Equivalent Level (CNEL), which is a 24-hour weighted average measure of community noise. It is calculated by adding 5 dBA to hourly noise levels during the evening (7:00 p.m. to 10:00 p.m.) and 10 dBA during the night (10:00 p.m. to 7:00 a.m.). The factor is assigned to account for the increased sensitivity to noise during the quiet hours. Federal agencies use the 24 day-night average L_{dn} , which is similar to CNEL with the 10 dBA addition to the hourly noise levels during the night-time hours, but does not include the evening hours factor. For purposes of this analysis, CNEL and L_{dn} are considered equivalent.

3.13.2 Applicable Regulations, Plans, and Policies

Department of the Navy

The U.S. Navy publication *Planning in the Noise Environment, NAVFAC P-970*, (DON 1978) provides noise compatibility criteria for various land uses. However, cemeteries are not one of the specifically described land uses.

MCO P5090.2A, Environmental Compliance Protection Manual Chapter 13, discusses requirements of federal facilities to comply with environmental noise regulations, including U.S. Navy Instruction OPNAVINST 11010.36B, *Air Installations Compatible Use Zones (AICUZ) Program*. Appendix J of MCO P5090.2A (U.S. Marine Corps 1998) includes excerpts from the Department of Defense Instruction 4165.57 Air Installations Compatible Use Zones. The AICUZ program recommends land uses that will be compatible with noise levels associated with military airfield operations. The DoD initiated the AICUZ program to protect the public's health, safety, and welfare and to prevent encroachment from degrading the operational capability of military air installations in meeting national security (DON 2002a). Table 2 of OPNAVINST 11030.36B provides suggested land use compatibility in noise zones. The applicable data from that table for cemeteries are shown below in Table 3.13-2. Exterior sound levels up to 69 dBA CNEL are compatible for cemeteries with no restrictions. Exterior noise levels from 70 to 79 dBA are compatible for cemeteries, but noise levels in buildings where the public is received, office areas, or where the normal noise level should be low must be reduced to less than 50 dBA CNEL. Cemeteries in areas where exterior noise levels range from 80 to 84 dBA CNEL are not recommended, but if built, persons using the cemetery should wear hearing protection.

City of San Diego Standards

Construction noise is governed by the City of San Diego Noise Ordinance, Section 59.5.0404. This ordinance restricts times of construction activities to 7 a.m. through 7 p.m. The ordinance also restricts activities to Monday through Saturdays excluding legal holidays. Further, the noise levels from construction activities to residential receptors are not to exceed 75 dBA, averaged over a 12-hour period (City of San Diego 2000).

**Table 3.13-2
Suggested Land Use Compatibility in Noise Zones**

Land Use	Suggested Land Use Compatibility						
	Noise Zone 1 (DNL or CNEL)		Noise Zone 2 (DNL or CNEL)			Noise Zone 3 (DNL or CNEL)	
	<55	55-64	65-69	70-74	75-79	80-84	85+
Cemeteries	Y	Y	Y	Y ²	Y ³	Y ^{4, 11}	Y ^{6, 11}

Source: DON 2002a

DNL Day-Night Average Sound Level.

CNEL Community Noise Equivalent Level (Normally within a very small decibel difference of DNL)

Y (Yes) Land Use and related structures compatible without restrictions.

Y^x (Yes with Restrictions) The land use and related structures are generally compatible. However, see note(s) indicated by the superscript.

² Measures to achieve Noise Level Reduction (NLR) of 25 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level should be low. NLR (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted.

³ Measures to achieve NLR of 30 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level should be low. See note 2 for additional conditions.

⁴ Measures to achieve NLR of 35 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level should be low. See note 2 for additional conditions.

⁶ No buildings.

¹¹ Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn.

3.13.3 Sensitive Receptors

Noise sensitive human receptors are generally considered to be persons who occupy areas where noise is an important attribute of the environment. These areas often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, education facilities, and libraries. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in extreme situations, hearing impairment. Noise sensitive receptors also may include wildlife, including certain songbirds.

The following paragraphs describe noise sensitive land uses near the alternative sites. Please see Section 3.7 of this EIS for the locations of noise sensitive threatened and endangered species.

Site 2 Alternative (Preferred Alternative)

The nearest sensitive receptors to Site 2 are the multi-family homes west of I-805 and north of Nobel Drive, approximately 0.6 mile (1.0 kilometer) west of the proposed site. These residences are located on Toscana Way and Toscana Drive in the Renaissance neighborhood. Residential facilities within MCAS Miramar are more than 1.5 miles (2.4 kilometers) east of Site 2.

Site 4 Alternative

The nearest sensitive receptors to Site 4 are residences and the Vista Grande Elementary School in the Tierrasanta community, south of SR 52 and west of Santo Road, that are approximately 1.0 mile (1.6 kilometers) to the southeast. Residences in the Scripps Ranch community, south of Pomerado Road and east of I-15, are approximately 3.3 miles (5.4 kilometers) to the northeast. Residential facilities within MCAS Miramar are more than 1.5 miles (2.4 kilometers) north of Site 4.

3.13.4 Noise Sources and Existing Noise Levels

The dominant noise at both of the proposed cemetery sites is aircraft noise resulting from flight operations. Figure 3.13-1 shows the aircraft noise levels as CNEL contours. These contours are based on the noise analysis conducted for the 2004 MCAS Miramar AICUZ study (MCAS Miramar 2004). As described at the beginning of this section, CNEL is an average noise value for the 24-hour day, weighted for the noise that occurs in the evening and nighttime. Another noise source of note is vehicle noise from the major roadways near the sites.

Site 2 Alternative (Preferred Alternative)

Aircraft noise levels over Site 2 range from approximately 67 to 79 dBA CNEL. Additional noise to the site comes from vehicles on I-805, Miramar Road, and Nobel Drive and the railroad line on the southern border of the site. I-805 is 400 to 1,300 feet (120 to 400 meters) west of the western site boundary; Miramar Road is adjacent to the northern site boundary; and Nobel Drive is adjacent to the northwest boundary the site.

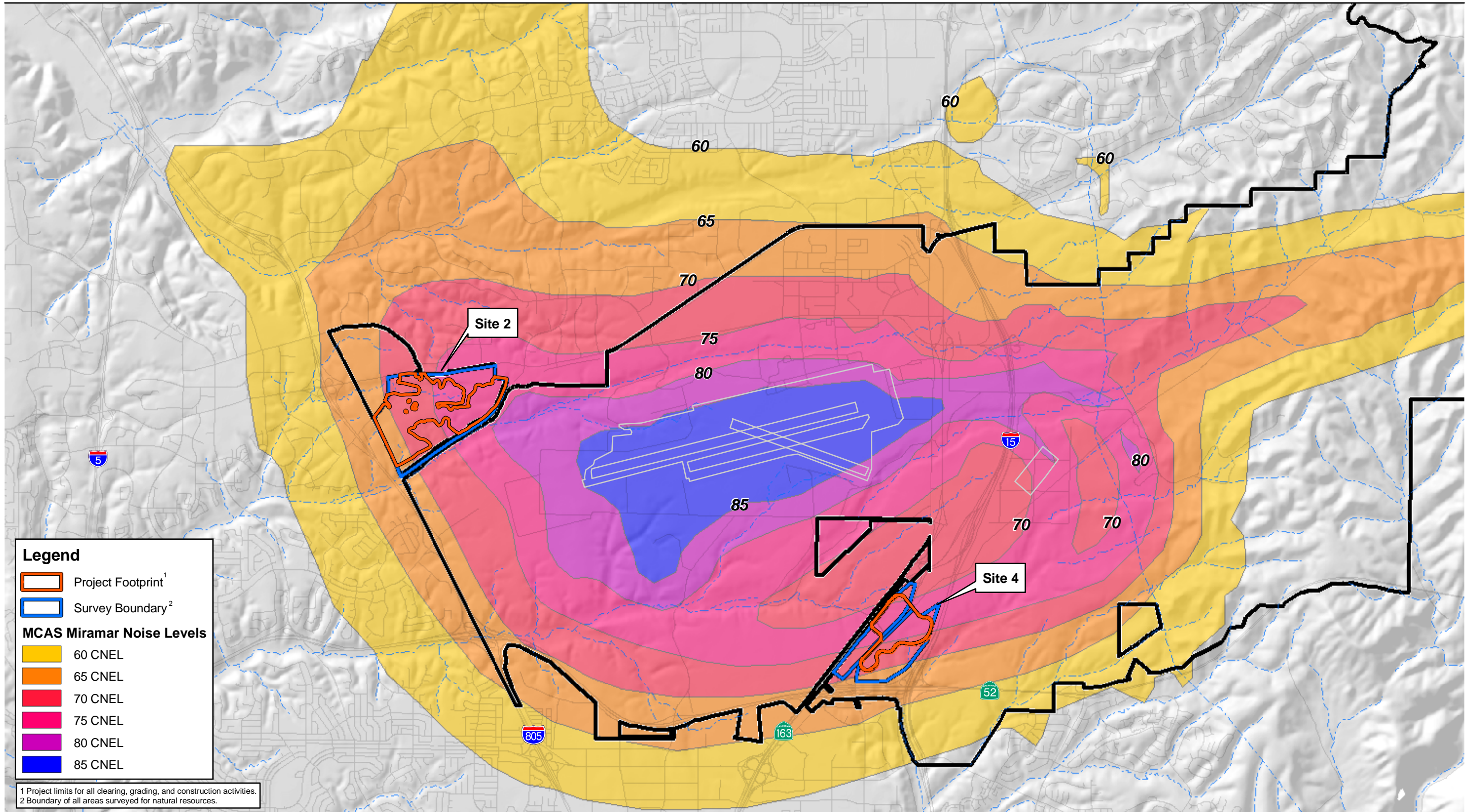
Noise measurements were recorded at Site 2 on 11 January 2006 between 10:30 a.m. and 1:30 p.m. The results are summarized in Table 3.13-3. Fifteen-minute average noise levels ranged from 76 to 86 dBA L_{eq} , with maximum noise levels ranging from 99 to 109 dBA. The dominant noise source was jet aircraft flyovers following takeoff from the MCAS Miramar

airfield, with 2- to 5-minute intervals between flyovers. Additional intermittent noise events during the measurements on the southern part of the site included helicopter overflights and a passing freight train. Background noise at the site was the traffic noise from Miramar Road, Nobel Drive, and I-805. Minimum noise levels near Miramar Road were approximately 55 dBA; these levels occurred during rare breaks in traffic on Miramar Road because signalization causes the traffic to move in groups. The traffic noise levels at locations 2-2 and 2-3 near Miramar Road were in the 65 to 70 dBA range for most of the measurement periods. On the southern part of the site, minimum noise levels were less than 40 dBA, because that part of the site is 1,000 to 1,500 feet (300 to 450 meters) from the roadways. The background noise level at location 2-4 was quieter compared to 2-5 because it is farther away from I-805.

**Table 3.13-3
Measured Noise Levels – Site 2**

Site ID*	Location	Time	Duration (Minutes)	L _{eq} (dBA)	L _{max} (dBA)	L _{min} (dBA)	Noise Source(s)
2-1	On northwest site boundary, adjacent to Nobel Drive, approximately 33 feet (10 meters) from the centerline of the roadway	10:33 a.m.- 10:48 a.m.	15	76	99	46	Jet aircraft, traffic on Nobel Drive
2-2	North side of Miramar Road, opposite northern site boundary at west end of site, approximately 60 feet (18 meters) from the centerline of the roadway	11:05 a.m.- 11:20 a.m.	15	78	100	55	Jet aircraft, traffic on Miramar Road
2-3	North side of Miramar Road, opposite northern site boundary at east end of site, approximately 50 feet (15 meters) from the centerline of the roadway	11:55 a.m.- 12:10 p.m.	15	86	106 (L _{max} for 2 jets together)	54	Jet aircraft, traffic on Miramar Road
2-4	Southeast part of site, near boundary, approximately 30 feet (9 meters) from the railroad track	12:39 p.m.- 12:54 p.m.	15	85	108	35	Jet aircraft, helicopters, freight train
2-5	Midway on southern site boundary	1:04 p.m.- 1:19 p.m.	15	84	109	39	Jet aircraft, helicopters,

* The Site ID corresponds to locations shown in Figure 3.13-2.



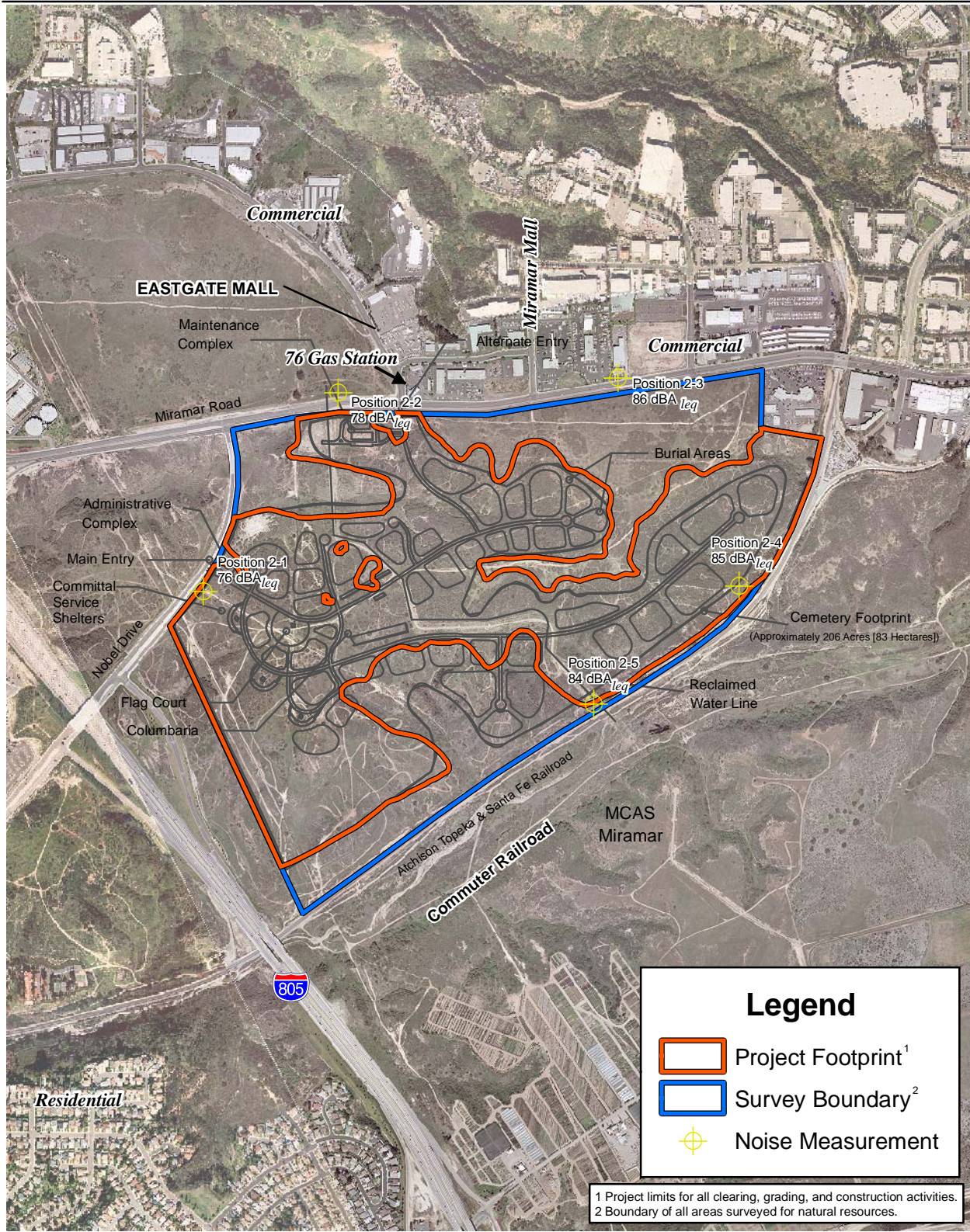
Source: MCAS Miramar; Eagle Aerial 2004; USGS

4,000 2,000 0 4,000 Feet

Scale: 1:48,000; 1 inch = 4,000 feet

Figure 3.13-1
Aircraft Noise Levels

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Legend

- Project Footprint¹
- Survey Boundary²
- ⊕ Noise Measurement

1 Project limits for all clearing, grading, and construction activities.
 2 Boundary of all areas surveyed for natural resources.

Source: Eagle Aerial 2004, MCAS Miramar

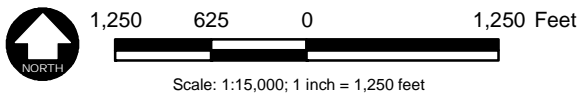


Figure 3.13-2

Site 2

Noise Measurements

Site 4 Alternative

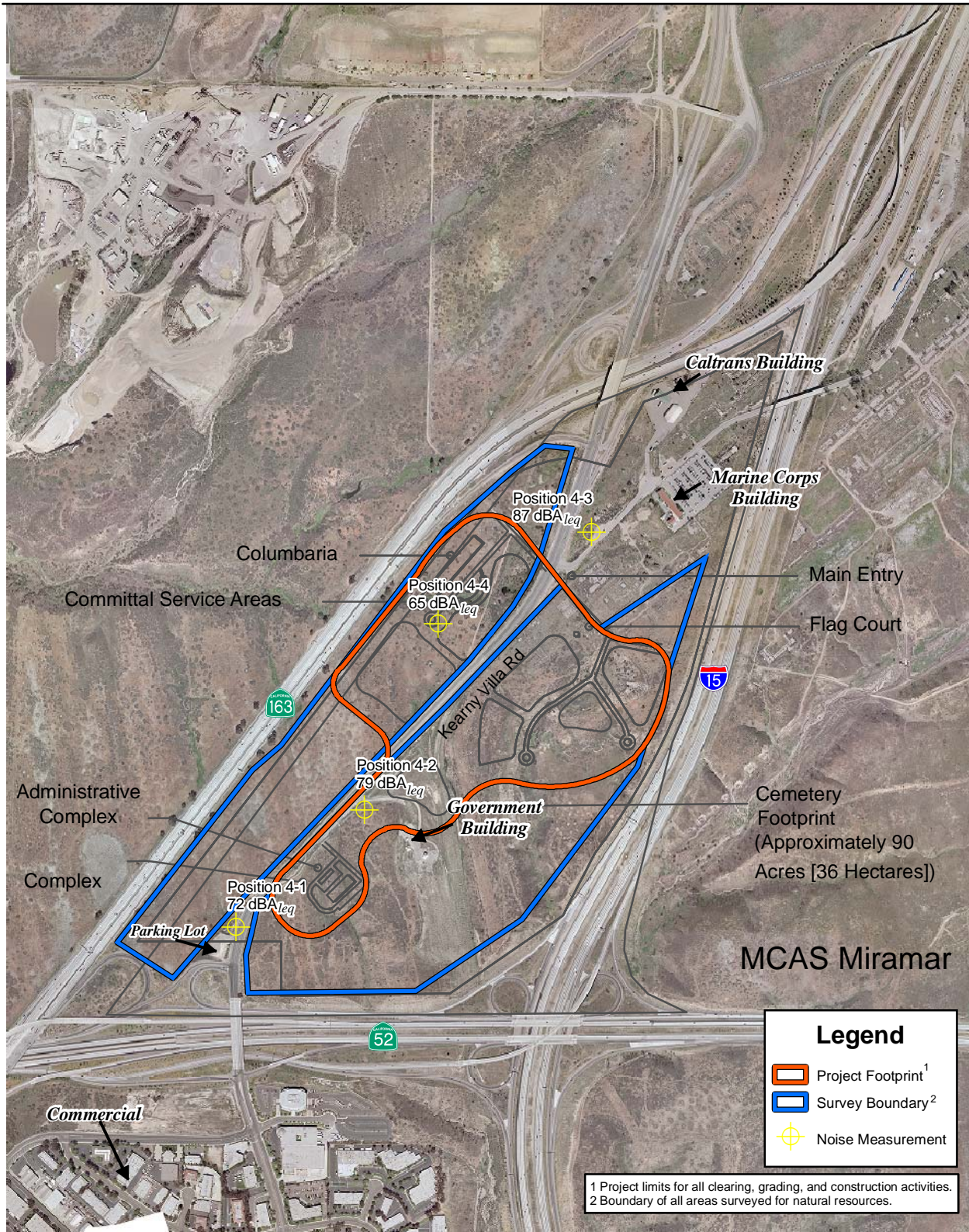
Aircraft noise levels over Site 4 range from approximately 69 to less than 80 dBA CNEL (Figure 3.13-1). Additional noise to the site comes from vehicles on I-15, SR 163, and Kearny Villa Road. I-15 is adjacent to the eastern site boundary; SR 163 is adjacent to the western site boundary; and Kearny Villa Road passes through the site. Traffic noise from SR 52 to the site is negligible, compared to the other noise sources.

Noise measurements were recorded at Site 4 on 11 January 2006 between 2:30 and 4:30 p.m.; the results are summarized in Table 3.13-4. The dominant noise source was jet aircraft flyovers prior to landing at the MCAS Miramar airfield with 2- to 5-minute intervals between flyovers. Intermittent noise events during the measurements on the southern part of the site also included helicopter overflights. Background noise at the site included the traffic noise from SR 163, Kearny Villa Road, and I-805. Traffic noise levels were in the 62 to 64 dBA range at measurement locations 4-1, 4-2, and 4-4, and in the mid-50 dBA range at location 4-3.

**Table 3.13-4
Measured Noise Levels – Site 4**

Site ID*	Location	Time	Duration (Minutes)	L _{eq} (dBA)	L _{max} (dBA)	L _{min} (dBA)	Noise Source(s)
4-1	South end of project site, in parking lot between west and east sections of the site	2:30 p.m.- 2:45 p.m.	15	72	93	61	Traffic on Kearny Villa Road and SR 163, jet aircraft, helicopters
4-2	Near center of site, on east side of Kearny Villa Road, approx. 35 feet (11 meters) from the centerline of the roadway	3:05 p.m.- 3:20 p.m.	15	79	98	62	Traffic on Kearny Villa Road and SR 163, jet aircraft, helicopters
4-3	North end of project site, between west and east sections of the site, i.e., between Kearny Villa and Camp Elliott roads	3:45 p.m.- 4:00 p.m.	15	89	108	51	Jet aircraft (8 events in 15 minutes); traffic on Kearny Villa Road and SR 163
4-4	South of north end of project site, on east portion midway between SR 163 and Kearny Villa Road	4:12 p.m.- 4:27 p.m.	15	65	80	61	Traffic on Kearny Villa Road and SR 163, jet aircraft, helicopters

* The Site ID corresponds to locations shown in Figure 3.13-3.



Source: Eagle Aerial 2004, MCAS Miramar

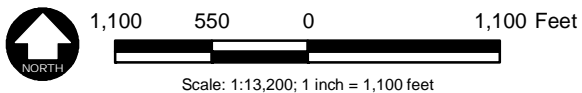


Figure 3.13-3
Site 4
Noise Measurements

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CHAPTER 4.0

ENVIRONMENTAL CONSEQUENCES

Chapter 4 of this EIS addresses the environmental consequences of the Proposed Action with respect to 13 environmental issue areas.

- | | |
|--------------------------|-------------------------------|
| 4.1 Land Use | 4.8 Soils and Geology |
| 4.2 Socioeconomics | 4.9 Water Resources |
| 4.3 Utilities | 4.10 Public Health and Safety |
| 4.4 Public Services | 4.11 Traffic/Circulation |
| 4.5 Visual Resources | 4.12 Air Quality |
| 4.6 Cultural Resources | 4.13 Noise |
| 4.7 Biological Resources | |

Each of the three alternatives (including the No Action Alternative) is analyzed from the viewpoint of these 13 environmental issues. Indirect impacts are discussed only for those issues where they have the potential to occur (e.g., biological resources, water resources, etc.).

Significant impacts are defined in terms of context and intensity. Context is related to the uniqueness of a resource. Intensity refers to the severity of the impact. Mitigation measures for both significant and less than significant impacts are provided to reduce impacts to an acceptable level or minimize environmental impact. These measures include:

- Avoiding the impact altogether by not taking certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

Following public review of this Final EIS, a Record of Decision (ROD) will be prepared and signed by the Navy Secretariat and the VA. The ROD is a concise public document providing rationale for the alternative and mitigation measures selected for implementation (Proposed Action) as presented in the Final EIS. The ROD states the Proposed Action and alternatives as well as all factors that influenced the decision. The ROD will identify and select mitigation measures that will reduce significant impacts associated with the Proposed Action to an acceptable level or provide the rationale for significant residual impacts.

4.1 LAND USE

Land use impacts can be associated with the incompatibility of physical development to adjacent existing and planned uses. High-intensity land uses, such as heavy industrial, which create possible nuisances, potential environmental hazards, or safety impacts (excessive noise, traffic, or hazardous wastes and substances) would not be compatible with adjacent, low-intensity land uses such as residential or recreation. Land use compatibility must also be evaluated in terms of compatibility with the mission of the MCAS Miramar. MCAS Miramar exists first and foremost to support the Marine Corps training mission.

Impacts can also be related to the level of consistency with local land use plans (such as general plans, zoning ordinances, master plans, and other specific land use policies), with federal policies such as the AICUZs. A significant impact would occur if proposed land uses were not consistent with the MCAS Miramar policy and mission, the INRMP (MCAS Miramar 2006), or federal land use plans.

4.1.1 Site 2 Alternative (Preferred Alternative)

Impacts

Land Use

On-site Land Use

The Preferred Alternative represents an increase in the intensity of use from its current condition as described in Section 3.1.1 to a cemetery annex for Fort Rosecrans National Cemetery. The Fort Rosecrans National Cemetery Annex would be developed in phases. During the first phase of development, the infrastructure required for the cemetery to function would be built, and selected areas of the site would be open to burials. The first phase would consist of the first 10-year burial development. The remainder of the site would be developed in future 10-year phased projects. When developed gravesites near depletion, another phase of the cemetery annex would be developed for burials.

As discussed in Section 2.3, master planning for and design of a new cemetery annex will take place only after a site has been selected, and each cemetery annex site would be, to a large extent, tailored to fit its location. A conceptual site plan has been prepared for the Site 2 Alternative (Figure 2-1). The final design for Site 2, if selected, would conform to VA

guidelines correspondingly. The proposed cemetery annex would not preclude or conflict with any current or planned military training or operations. No significant on-site land use compatibility impacts would occur. Refer to Section 4.13 for noise-land use compatibility.

Surrounding Land Use

As discussed in Section 3.1.2, a variety of land uses exist to the north of Site 2 within the Miramar Road Corridor and consist mostly of commercial, office, service-oriented businesses, and light and heavy industrial uses. Additionally, the community of Mira Mesa is located to the north. Mira Mesa consists of single-family neighborhoods, multi-family complexes, and supporting services and commercial enterprises (particularly along Mira Mesa Boulevard, which runs approximately parallel to Miramar Road). Due to the minimal land use impacts involved with the development of the cemetery annex, impacts to the surrounding land use would be less than significant.

Adopted Plans, Policies, and Ordinances

Land use within MCAS Miramar must be consistent with criteria established by the MCAS Miramar Master Plan. The Site 2 Alternative is designated as undeveloped. As discussed in Section 3.1.3, portions of the Site 2 Alternative are located within APZs I and II. Guidelines for land use compatibilities within noise zones are identified in the MCAS Miramar AICUZ Study. The purpose of land use compatibility guidelines for APZs is to limit the density of people at any one time and the coverage of development on a particular site. Restrictions on persons per acre and maximum site coverages are methods that allow for decreasing public risk and increasing pilot options for downing a malfunctioning aircraft. Land use guidelines in APZs are more conservative than those for noise impact, since the possible consequences of incompatible development are more serious (MCAS Miramar 2004).

Table 3 of OPNAVINST 11010.36B, which is the appendix of the MCAS Miramar AICUZ update (MCAS Miramar 2004), states that cemetery uses are considered a compatible land use for APZ I. Uses that would involve gatherings of more than 25 people such as memorial services are not allowed within APZ I. Under the Site 2 Alternative, areas where people would gather such as the Committal Service Shelters and Flag Assembly Area would be located outside APZ I. Therefore, no significant impacts to land use compatibility within APZ I or II would occur.

As discussed in Section 3.1.3 of this EIS, Site 2 includes areas of Level I MA - vernal pools and associated watersheds, Level II MA - non-vernal pool threatened and endangered species, Level

III MA - habitat linkages/riparian vegetation, and Level IV MA - remaining undeveloped areas. As discussed in Section 3.1.3 of this EIS, Level IV MAs may support some sensitive and protected resources, but they do not support substantially high-value, regulated resources supported by Levels I, II, and III MAs. Level IV MAs usually have fewer limitations than Levels I, II, and III; therefore, early in the planning process attempts were made to avoid development in these areas. However, since avoidance of all of Level I, II, and III MAs was not possible, compensation for those areas would follow the guidelines of the INRMP and are discussed in Section 4.7.

Additionally, the Site 2 Alternative would be designed to meet the applicable land use objectives in the INRMP, specifically Objective I in Section 7.2.5 relating to grounds maintenance and landscaping objectives which reads:

“Ensure that ground maintenance and landscaping operations are consistent with natural resources goals and objectives.”

Therefore, the Site 2 Alternative would be consistent with the grounds maintenance and landscaping objectives of the INRMP.

Surrounding Adopted Plans, Policies, and Ordinances.

The project site is owned by the federal government and is outside the jurisdiction of the City of San Diego. The site, designated military in the *Progress Guide and General Plan* (City of San Diego 1989), would continue to be owned by the DON and would not be under jurisdiction of the City. As discussed in Section 1.1, the Proposed Action would be a land use agreement between the DON and the NCA for the construction and operation of an annex to the existing Fort Rosecrans National Cemetery. Development of Site 2 is generally consistent with local City adopted plans, ordinances, and policies.

As discussed in Section 3.1.3, the Site 2 Alternative occurs entirely within the boundaries of MCAS Miramar and would not be under the planning jurisdiction of the NCCP planning areas. However, the INRMP, as implemented, has been developed to be consistent with the guidelines used for subarea plans under the MSCP. Therefore, development of the Site 2 Alternative would be consistent with the NCCP and no significant impacts would occur.

Mitigation Measures

No significant land use compatibility impacts would occur under the Site 2 Alternative. No mitigation measures are proposed.

4.1.2 Site 4 Alternative

Impacts

Land Use

On-site Land Use

As discussed above under the Site 2 Alternative, the Site 4 Alternative would represent an increase in the intensity of use of the proposed Site 4 from its current undeveloped condition to a cemetery annex to Fort Rosecrans National Cemetery. Like the Site 2 Alternative, the Site 4 Alternative master planning for and design of a new cemetery annex would take place only after a site was selected. The concept plan for this alternative is shown in Figure 2-2. Overall, the construction and operation of this alternative would be similar to the Site 2 Alternative and would also be designed in phases. The final design for Site 4, if selected, would conform to VA guidelines correspondingly. The proposed cemetery annex would not preclude or conflict with any current or planned military training or operations. No on-site land use compatibility impacts would occur. Refer to Section 4.13 for noise-land use compatibility.

Surrounding Land Use

As discussed in Section 3.1.3, the communities of Kearny Mesa and Tierrasanta are located to the southeast of the Site 4 Alternative.

Most of the area to the south of the Site 4 Alternative, south of SR 52, is developed commercial/industrial. The community plan proposes continued commercial/industrial uses within undeveloped areas of Kearny Mesa. The community plan for Tierrasanta is designated by a combination of open space, light industrial, and low-density residential land uses adjacent to SR 52 southeast of Site 4. Project features for the proposed Site 4 Alternative, as discussed previously in Section 2.3.2, would be consistent with the community plans for the surrounding areas. Furthermore, SR 52 separates Site 4 from both Kearny Mesa and Tierrasanta. Therefore, land use impacts would not be significant.

Adopted Plans, Policies, and Ordinances

As discussed in Section 3.1.3, the majority of the Site 4 Alternative is located within APZ I as identified in the AICUZ report. Similar to the Site 2 Alternative, cemeteries are an allowable use in APZ I but gatherings are restricted to 25 occupants per acre. Under the Site 4 Alternative, areas where people would gather such as the Committal Service Area and Flag Assembly Area are located within APZ I. Gatherings of over 25 people per acre within APZ I would not be compatible with the AICUZ report and would result in a significant land use impact.

The Site 4 Alternative is also located within Level I through Level V MAs of the INRMP. Impacts to the Level I through Level V MAs for the Site 4 Alternative would be similar to the impacts discussed for the Site 2 Alternative.

Surrounding Adopted Plans, Policies, and Ordinances

The project area would continue to be owned by the DON and would not be under the jurisdiction of the City of San Diego. Although the project would not be under the jurisdiction of the City, the Proposed Action is generally consistent with the local City adopted plans, ordinances, and policies.

As discussed for the Site 2 Alternative, the Site 4 Alternative occurs entirely within the boundaries of MCAS Miramar and would not be under the jurisdiction of the NCCP. As with the Site 2 Alternative, implementation of the INRMP, as it relates to the Site 4 Alternative, would be consistent with the NCCP and no significant impacts would occur.

Mitigation Measures

Gatherings of more than 25 people per acre within APZ I would not be compatible with the AICUZ report and would result in a significant land use impact. To mitigate this impact, gatherings would need to be restricted to 25 or fewer or would be required to be held outside APZ I, which would include off-site areas or other facilities within MCAS Miramar. Both of the mitigation measures, however, represent undesirable operational constraints for a national cemetery.

4.1.3 No Action Alternative

Impacts

No impacts to land use would occur since the proposed cemetery annex would not be constructed under the No Action Alternative.

Mitigation Measures

No mitigation measures are proposed under the No Action Alternative.

4.2 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

General socioeconomic impacts resulting from a proposed action can lead to an economic gain or loss for affected communities or surrounding area. Socioeconomic impacts refer to the basic attributes and resources associated with the human environment, with particular emphasis on population, employment, and housing. Potential impacts can be related to the displacement of populations, residences, and/or businesses; impacts to the availability of housing or accommodation; and the inducement of growth. Socioeconomic impacts can also stem from the nature and duration of construction and operational activities that in turn may lead to displacement or modification of existing activities, and any diversion or temporary suspension of access associated with a proposed action.

4.2.1 Site 2 Alternative (Preferred Alternative)

Impacts

This section will address the potential impacts of the two development alternatives and the No Action Alternative. Impacts from both construction and operations will be addressed.

Construction Impacts

Construction-related labor and economic impacts are anticipated to be incrementally positive with a temporary crew of 3 to 25 persons derived from the local labor pool, depending upon the phase of construction. Temporary construction impacts are not expected to impede residential or business activity within the communities surrounding the site, with the majority of the construction to occur on MCAS Miramar. Because of the incremental and minimal scale of the cemetery annex construction, no adverse socioeconomic impacts are expected from the construction phase of the project.

Operation

Operation of the proposed facility would affect the local community in a number of positive ways. Economic benefits would include slightly increased employment, payrolls, and indirectly, local sales taxes. In terms of public revenues, a national cemetery has been deemed exempt from property taxes, and therefore no net increase in tax revenue would occur. Development of a national cemetery annex at this site would not represent an opportunity lost through preclusion of other tax-generating development either, given that the site is already part of a military

installation and therefore in tax exempt status. From the standpoint of cemetery employees, a slight increase in employment is expected, with an initial need of approximately 24 employees. However, this total includes a majority of existing Fort Rosecrans National Cemetery employees who would serve the cemetery annex in addition to the existing cemetery. No displacement of populations, residences, and/or businesses is anticipated as a result of the Proposed Action. No impacts to population growth rates, or the availability of housing or accommodation within the study area, are anticipated as a result of the Proposed Action.

With a San Diego military veteran population of over 253,000 persons, approximately 2,000 people currently travel to Riverside from San Diego for the casketed burial option at Riverside National Cemetery because of unavailability of casketed burials in a national cemetery in San Diego. This is an annual figure of eligible veterans per year who utilize the casketed burial option at Riverside from the present San Diego veteran population. The proposed development of a cemetery to service the need from 253,000 San Diego veterans would provide a number of social and economic benefits to veterans' family members. Currently, numerous families from the San Diego area travel 90 miles (145 kilometers) or more for casketed burials at the Riverside National Cemetery. These trips can range from 2 to 4 hours of driving, depending upon the time of day. This creates a social and economic hardship for family members, particularly for the elderly, to attend services and subsequently visit a gravesite. With implementation of the Proposed Action, costs associated with San Diego area resident travel to Riverside would be alleviated, estimated at a savings of \$67 per person roundtrip, based upon 2006 General Services Administration "privately owned vehicle" per diem mileage rate of 44.5 cents per mile.

The proposed cemetery annex would not have any significant adverse socioeconomic impacts and would have incrementally positive socioeconomic impacts.

Environmental Justice and Environmental Health and Safety Risks to Children

This section contains analysis required under Executive Order 12898: Environmental Justice (59 Fed. Reg. 7629 [1994]); and Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks (62 Fed. Reg. 19885 [1997]).

Environmental Justice

Under Executive Order 12898: Environmental Justice, demographic information is utilized to determine whether minority or low-income populations are present in the area affected by the proposed action. If so, a determination must be made as to whether the implementation of the

proposed project may cause disproportionately high and adverse human health or environmental impacts on those populations.

The CEQ defines the term “minority” as persons from any of the following groups: Black/African American; Hispanic, regardless of race, Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native. Additionally, for the purposes of this analysis, “minority” also includes all other nonwhite racial categories such as “some other race” and “two or more races.” The Interagency Federal Working Group on Environmental Justice guidance states that a “minority population” may be present in an area if the minority population percentage in the area of interest is “meaningfully greater” than the minority population in the general population.

Additionally, the CEQ defined low-income populations as those identified with the annual statistical poverty thresholds from the Bureau of the Census. The accepted rationale in determining what constitutes a low-income population is similar to minority populations, in that a low-income population may be present when the low-income population percentage within the area of interest is “meaningfully greater” than the low-income population in the general population.

Within the project study area and as shown in Table 3.2-2, two tracts showed total minority populations above the city average (51.0 percent). The tracts, 83.50 (at 65.5 percent), and 83.60 (at 60.8 percent), are deemed to have total minority populations meaningfully greater than the city average (proportionally 30.4 and 19.2 percent, respectively) and, under the environmental justice guidelines outlined above, are considered to be minority populations.

Within the project study area and as shown in Table 3.2-3, a total of three census tracts showed poverty levels above the city average (14.6 percent). Poverty levels within the tracts ranged from 14.7 percent (tract 83.44) and 16.1 percent (tract 83.40) to 31.0 percent (tract 83.39). Poverty levels within tract 83.44, at 14.7 percent, are not deemed to be meaningfully greater than the city average of 14.6 percent. Conversely, tracts 83.40 and 83.39 at 16.1 percent and 31.0 percent, respectively, are deemed to have poverty levels meaningfully greater than the city average (proportionally 10.2 and 112.3 percent, respectively), and under CEQ guidelines for low-income populations outlined above, are considered to be low-income populations.

No substantial, adverse off-site impacts are anticipated in the areas of utilities, visual resources, hazardous materials, traffic and circulation, air quality, noise, and public health and safety. No

adverse long-term impacts are anticipated, although incrementally positive minor local and regional economic impacts are expected with the implementation of the Proposed Action.

Although there are both minority populations and low-income populations present within the study area, there is no indication that either the construction or operation of the Proposed Action would negatively impact either a minority or low-income population component to any greater degree than the general population of the surrounding area or region. As such, disproportionately high and adverse human health or environmental impacts on minority populations or low-income populations are not expected and no Environmental Justice impacts are anticipated.

Environmental Health and Safety Risks to Children

On 21 April 1997, Executive Order 13045, Environmental Health and Safety Risks (62 Fed. Reg. 19885 [1997]), was signed by President Clinton. The policy of Executive Order 13045 states that:

A growing body of scientific knowledge demonstrates that children may suffer disproportionately more environmental health risks and safety risks. These risks arise because: children's neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children's size and weight may diminish their protection from standard safety features; and children's behavior patterns may make them more susceptible to accidents because they are less able to protect themselves. Therefore, to the extent permitted by law and appropriate, and consistent with the agency's mission, each Federal agency:

- (a) Shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and
- (b) Ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Under the definitions provided in Executive Order 13045, covered regulatory actions include those that may be "economically significant" (under Executive Order 12866) and "concern an

environmental health risk or safety risk that an agency has reason to believe may disproportionately affect children.” Further, Executive Order 13045 defines “environmental health risks and safety risks” [to] “mean risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to).” To comply with the executive order, this section of the EIS discusses child-specific environmental health risk and safety risk issues associated with the proposed Fort Rosecrans National Cemetery Annex.

There are, at the time of preparation of this document, no published strategies or guidelines on the implementation of the executive order. It is possible, however, to summarize likely sources of environmental health and safety risks to children resulting from the project alternatives and the locations at which they may be affected.

The alternative site locations are predominantly surrounded by undeveloped portions of MCAS Miramar, with some residential, commercial/industrial, and recreational uses off MCAS Miramar surrounding portions of the proposed cemetery annex sites. No facilities frequently used by children, such as schools or neighborhood parks, are located within the immediate vicinity of Sites 2 and 4.

Site 2 is located entirely within MCAS Miramar. Freeway, residential, and commercial uses exist to the north and west of Site 2. No facilities frequently used by children, such as schools or neighborhood parks, are located within the immediate vicinity of Site 2.

University City High School is the closest school to Site 2, located approximately 1.1 miles (1.8 kilometers) to the southwest. Eastgate Christian Schools Day Care Center, located 1.3 miles (2.1 kilometers) to the southwest of Site 2 is the closest daycare facility. The nearest neighborhood park is Mandell Weiss Eastgate Park, located approximately 1.2 miles (1.9 kilometers) to the east of the site.

No substantial, adverse off-site impacts are anticipated in the areas of utilities, visual resources, hazardous materials, traffic/circulation, air quality, noise, and public health and safety with the implementation of the Site 2 Alternative. No environmental health and safety risks to children are likely to occur as a result of the proposed project at Site 2.

Mitigation Measures

The Site 2 Alternative would not result in any significant socioeconomic impacts and therefore no mitigation measures are proposed.

4.2.2 Site 4 Alternative

Impacts

Construction Impacts

Construction-related labor and economic impacts are anticipated to be incrementally positive similar to those of the Site 2 Alternative, detailed above. Temporary construction impacts are not expected to impede residential or business activity within the communities surrounding the site, with the majority of the construction to occur on MCAS Miramar. Because of the incremental and minimal scale of the cemetery annex construction, no adverse socioeconomic impacts are expected from the construction phase of the project.

Operation

Operational labor and economic impacts from the Site 4 Alternative are again anticipated to affect the local community in a number of positive ways, similar to those of the Site 2 Alternative. Economic benefits would include slightly increased employment, payrolls, and indirectly, local sales taxes. No property tax revenue would be lost. No displacement of populations, residences, or businesses is anticipated as a result of the proposed project. No impacts to population growth rates, or the availability of housing or accommodation within the study area, are anticipated as a result of the proposed project. The social and economic benefits to local veterans' family members, outlined above, would also be similar under the Site 4 Alternative.

The proposed cemetery annex would not have any significant adverse socioeconomic impacts and would have incrementally positive socioeconomic impacts.

Environmental Justice and Environmental Health and Safety Risks to Children

Environmental Justice

Within the project study area and as shown in Table 3.2-2, two tracts showed total minority populations above the city average (51.0 percent). The tracts, 83.50 (at 65.5 percent), and 83.60 (at 60.8 percent), are deemed to have total minority populations meaningfully greater than the city average. Neither of these tracts is located near the Site 4 Alternative.

Within the project study area, a total of three census tracts showed poverty levels above the city average (14.6 percent). Poverty levels within the tracts ranged from 14.7 percent (tract 83.44) and 16.1 percent (tract 83.40) to 31.0 percent (tract 83.39). None of these tracts are located near the Site 4 Alternative.

No substantial, adverse off-site impacts are anticipated in the areas of utilities, visual resources, hazardous materials, traffic and circulation, air quality, noise, and public health and safety. No adverse long-term impacts are anticipated, although incrementally positive minor local and regional economic impacts are expected with the implementation of the Site 4 Alternative.

Although there are both minority populations and low-income populations present within the overall study area, there is no indication that either the construction or operation of the Site 4 Alternative would negatively impact either a minority or low-income population component to any greater degree than the general population of the surrounding area or region. As such, disproportionately high and adverse human health or environmental impacts on minority populations or low-income populations are not expected and no Environmental Justice impacts are anticipated.

Environmental Health and Safety Risks to Children

Site 4 is located in the south-central portion of MCAS Miramar and is completely surrounded by freeways. No facilities frequently used by children, such as schools or neighborhood parks, are located within the immediate vicinity of Site 4.

Vista Grade Elementary is the closest school to Site 4, located approximately 1.0 mile (1.6 kilometers) to the southeast. City Employee Children's Center daycare facility, located 0.8 mile (1.3 kilometers) to the southwest of Site 4, is the closest daycare facility. The nearest

neighborhood park is Villa Montserate Park, located approximately 0.9 mile (1.4 kilometers) to the southeast of the site.

No substantial, adverse off-site impacts are anticipated in the areas of utilities, visual resources, hazardous materials, traffic/circulation, air quality, noise, and public health and safety with the implementation of the Site 4 Alternative. No environmental health and safety risks to children are likely to occur as a result of the proposed project at Site 4.

Mitigation Measures

The Site 4 Alternative would not result in any significant socioeconomic impacts and therefore no mitigation measures are proposed.

4.2.3 No Action Alternative

Impacts

Under the No Action Alternative, the proposed cemetery would not be constructed. No positive or adverse impacts from construction or operation would occur. No displacement of populations, residences, and/or businesses would occur. No impacts to population growth rates, or the availability of housing or accommodation within the study area would occur. The adverse social and economic impacts to local veterans' family members, traveling back and forth to Riverside National Cemetery, as outlined above, would continue to occur under the No Action Alternative.

Mitigation Measures

The No Action Alternative would continue the adverse social and economic impacts to local veterans' family members, traveling back and forth to Riverside National Cemetery. No mitigation measures are proposed.

4.3 UTILITIES

Impacts on utilities would be considered significant if utility systems both on and off MCAS Miramar could not effectively accommodate the projected service requirements of the Proposed Action.

4.3.1 Site 2 Alternative (Preferred Alternative)

Impacts

Water

This discussion will address the use of potable water and reclaimed water for the Proposed Action. A new potable water distribution system would be constructed within the development footprint to serve the proposed annex to the existing Fort Rosecrans National Cemetery. The VA would design and construct the potable water system. The City of San Diego would maintain the new water distribution system, which would be designed according to City standards and meet fire flow requirements. An access easement on-site would be granted to the City. The proposed potable water distribution system for this alternative would consist of a network of pipes that would follow the proposed roads to create a looped system. The proposed off-site connection point would be the existing water line beneath Miramar Road. Booster pumps and/or reservoirs would be required for fire storage requirements and for adequate pressure at the higher elevations of Site 2.

Potable water consumption for the proposed cemetery annex would be approximately 400 gallons (1,514 liters) per day. Based on the demand, all facilities would be sized and designed in accordance with the City of San Diego Water and Sewer Design Manual. Prior to the finalization of the site plan, the NCA would coordinate with the City of San Diego to identify the necessary on-site improvements and specific water system upgrades to serve the project. Although not anticipated at this time, coordination with the MCAS Miramar Public Works Center would be required if the proposed water system require connection to the Naval Facilities civil utilities on MCAS Miramar. By any measure, the small demand of the Site 2 Alternative would not be a significant impact to the water supply.

In addition, the Site 2 Alternative would maximize the use of reclaimed water for irrigation and other nonpotable purposes such as construction and restroom facilities in compliance with E.O. 13123. A reclaimed water line from the North City Water Reclamation Facility crosses Site 2

(Figure 2-1) and would be accessed for use. A new reclaimed water distribution system would be constructed within the development footprint to serve the proposed annex. The VA would design and construct the reclaimed water system and the City of San Diego would maintain this distribution system. The City of San Diego Water Department recommended the cemetery annex use reclaimed water for nonpotable purposes in a scoping letter dated 3 November 2005 (Appendix A).

It is projected that the proposed annex on Site 2 would have an average daily demand of approximately 366,000 gallons (1.4 million liters) per day (based on watering requirements for 214 acres [87 hectares]). The use of reclaimed water would offset any potential water supply impacts.

Sewer

Sewer wastewater generation from the Site 2 Alternative would be accommodated by a new on-site sewer system and by the existing sewer service. The new sewer collection system would be constructed by the VA within the development footprint. The system would be designed to City of San Diego standards with a granted easement to the City. The City would maintain the system. The sewer lines for this alternative would run under the proposed streets, with pump stations necessary for localized low points. Sewer service would connect to the existing sewer line beneath Miramar Road. It is projected that the proposed cemetery annex would generate approximately 200 gallons (757 liters) of wastewater per day. This is based on an assumed wastewater generation rate of 10 gallons (38 liters) per employee per day (fairly standard for a commercial enterprise) with 20 employees working at the site. Compared to the 170 mgd of sewage currently treated at the City of San Diego Sewage Treatment Plant, Site 2 would generate less than one-tenth of 1 percent of the current treatment. Therefore, impacts from wastewater generation would not be significant.

Natural Gas and Electricity

The demand for natural gas and electricity at Site 2 would be accommodated by existing services provided by SDG&E and by the new electrical and gas distribution systems that would be installed as part of the proposed cemetery annex. The proposed connection point for natural gas would be the main located adjacent the site to the west along I-805. The proposed connection point for electricity would either be a 12-kV underground circuit on the north side of Miramar Road or an existing overhead 12-kV line that is in the vicinity of the southern border of the Site 2 Alternative. The NCA would also explore the use of renewable energy such as solar power

where feasible. Due to the limited demand for both electricity and gas, impacts associated with the provision of natural gas and electricity would not be significant.

The demand for natural gas and electricity at Site 2 would be accommodated by existing services provided by SDG&E and by the new electrical and gas distribution systems that would be installed as part of the proposed cemetery annex. The proposed connection point for natural gas would be the main located adjacent the site to the west along I-805. The proposed connection point for electricity would either be the overhead 230-kV line that crosses Site 2 from north to south or the point of connection along Miramar Road. Due to the limited demand for both electricity and gas, impacts associated with the provision of natural gas and electricity would not be significant.

Solid Waste

Assuming a generation factor of 3.09 pounds (1.4 kilograms) of solid waste per person per day (USEPA 2003), the Site 2 Alternative would generate approximately 11.2 tons (10.2 metric tons) per year based on 20 employees working 260 days per year. The Fort Rosecrans National Cemetery Annex, like all National Cemeteries, would be open 260 days per year. The VA and MCAS Miramar practice waste minimization and recycling to further reduce waste generation. The additional solid waste would be accommodated in the Miramar Landfill. The Miramar Landfill has approximately 11.9 million tons (10.8 metric tons) of available space left, and the approximate 11.2 tons (10.2 metric tons) per year generated by the Site 2 Alternative would be a minimal increase in the amount of solid waste accommodated by the landfill. The solid waste generated by the Site 2 Alternative would not significantly impact the operation or the lifespan of the Miramar Landfill. The Miramar Landfill has a green waste recycling program and almost 100 percent of the green waste generated at the proposed annex would be recyclable. Additionally, non-green waste recycling receptacles would be placed next to trash receptacles. As stated in the lease agreement between the DON and the City of San Diego, “the federal government reserves the right for all DON installations and facilities located within or near the boundaries of the City of San Diego to dispose of waste in any sanitary landfill owned and/or operated by the City of San Diego on DON property including the sanitary landfill on parcel 2, without limitation as to the quantity and at no cost to the Government, for the term of this lease and any extension hereof.” Due to remaining capacity and the circumstances of this lease, no significant impacts to solid waste facilities would occur.

Mitigation Measures

No significant impacts were identified for water, sewer, natural gas, electricity, or solid waste, and no mitigation measures are proposed. The following measures are recommended for drinking water safety and water conservation.

- The water lines would be located at a minimum of 1 foot (0.3 meter) below and 10 feet (3 meters) away from existing and proposed sewer lines.
- The proposed water lines should not be located within 10 feet (3 meters) of existing or proposed trees or large shrubs.
- A computer controlled irrigation system should be used.

4.3.2 Site 4 Alternative

Impacts

Water

As with Site 2, a new potable water distribution system would be constructed to serve the proposed annex to the existing Fort Rosecrans National Cemetery at Site 4. It is projected that the proposed annex at Site 4 would have an average daily demand of approximately 277,410 gallons (1.05 million liters) per day. The average daily demand is less than one-tenth of 1 percent of the system capacity of 925 mgd (SDCWA 2002). The City of San Diego would maintain the new water distribution system, which would be designed according to City standards and meet fire flow requirements. An access easement on-site would be granted to the City. Based on the City of San Diego Density Conversion, the proposed water distribution system would be sized and designed in accordance with the City of San Diego Water and Sewer Design Manual. Prior to the finalization of the site plan, the NCA would coordinate with the City of San Diego to identify the necessary on-site improvements and specific water system upgrades to serve the project. Reclaimed water is not planned for this site due to the distance to the point of connection and the potential impacts to sensitive biological resources. The point of connection is in the vicinity of the landfill approximately 700 feet (213 meters) to the west.

The proposed water distribution system connection point would be the existing water line in Kearny Villa Road. Under this alternative, water service would continue to be provided by the

City of San Diego, and due to the small demand of the Site 4 Alternative compared to the greatest quantity of water used by member agencies, impacts to the supply of potable water would not be significant and no significant impacts to the supply of water would occur.

Sewer

As with the Site 2 Alternative, the City would maintain the new sewer system, and the increase in wastewater generation would be accommodated by the new on-site sewer system and by the existing sewer service. Sewer service would be provided via the existing sewer line beneath Kearny Villa Road. It is projected that the proposed annex at Site 4 would generate approximately the same amount of sewage as it would at Site 2 and have a similar impact to the system. The design and sizing of the new sewer system would follow the same criteria as described under the Site 2 Alternative. Therefore, impacts from wastewater generation would not be significant.

Natural Gas and Electricity

The demand for natural gas and electricity at Site 4 would be accommodated by existing services provided by SDG&E and by the new electrical and gas distribution systems that would be installed as part of the proposed cemetery annex. The proposed connection point for natural gas would be the natural gas main that crosses the site from north to south. The proposed connection point for electricity would be the overhead 69-kV line that crosses from north to south to the east of Site 4. The NCA would also explore the use of renewable energy such as solar power where feasible. The increase in gas and electricity would be accommodated by the new distribution systems and by the existing services provided by SDG&E. Therefore, impacts associated with the provision of natural gas and electricity would not be significant.

Solid Waste

Operational solid waste generation would be the same as for the Site 2 Alternative. No significant impacts to solid waste would occur.

Mitigation Measures

No significant impacts were identified for water, natural gas, electricity, or solid waste, and no mitigation is necessary.

4.3.3 No Action Alternative

Impacts

The No Action Alternative would not generate any additional demands for water services, sewer services, natural gas or electrical services, or solid waste. Therefore, there would be no impacts.

Mitigation Measures

No significant impacts were identified and no mitigation measures are proposed.

4.4 PUBLIC SERVICES

Impacts on public services would be considered significant if fire and police could not effectively accommodate projected service requirements of the Proposed Action.

4.4.1 Site 2 Alternative (Preferred Alternative)

Impacts

Fire Protection

Because the Site 2 Alternative is entirely within the boundaries of MCAS Miramar, fire service would continue to be provided by the Marine Corps Fire Department on MCAS Miramar. Fire service for the Site 2 Alternative would be provided by Station 61 at Mitscher Way and Miramar Way, with emergency backup from Station 62 in the Camp Elliott area. If the MCAS Miramar Fire Department required emergency assistance, it would notify the City of San Diego Fire Department per an existing mutual aid agreement.

Development of the Site 2 Alternative, including the cemetery annex support facilities, such as the Administrative Complex, the Maintenance Complex, and the information center on an undeveloped site, would increase the demand for fire services. The increased demand, however, would be minimal because of the limited structural development and the passive nature of the cemetery annex development. The majority of the development would be landscaped lawn areas along with a road network. Structures would be single-story and minimal in size. The structures would be occupied only during the day with no residences on-site. The Proposed Action would be designed and constructed in compliance with the MCAS Miramar Marine Corps Fire Department regulations. The cemetery annex design will require review and approval by the Marine Corps Fire Department. To ensure adequate response time, the Marine Corps Fire Department should have access through the MCAS Miramar West Gate. The Proposed Action would not result in a significant impact to fire service demand for MCAS Miramar.

Police Service

Development of the Site 2 Alternative would result in an increased demand for military police services at the proposed cemetery annex. The increased demand would be in the form of additional areas to be patrolled. Because the site is under proprietary federal jurisdiction, police service would continue to be provided by the MCAS Miramar PMO. Since the Proposed Action

would not result in an influx of new residents and would only involve approximately 20 new employees working on the site and daily visitors for burial services and visitations, this additional police service demand would not be a significant impact.

Mitigation Measures

There would be no significant impacts and no mitigation measures are proposed.

4.4.2 Site 4 Alternative

Impacts

Fire Protection

Because the Site 4 Alternative is under exclusive federal jurisdiction, fire service would continue to be provided by the Marine Corps Fire Department on MCAS Miramar. Fire service for the Site 4 Alternative would be provided by Station 62 in the Camp Elliott area with emergency backup from Station 61 at Mitscher Way and Miramar Way. If the MCAS Miramar Fire Department required emergency assistance, it would notify the City of San Diego Fire Department per an existing mutual aid agreement.

Similar to the development of the Site 2 Alternative, the Site 4 Alternative would increase the demand for fire services. The increased demand, however, would be minimal because of the limited structural development, the passive nature of the cemetery annex development, and the smaller size of this alternative site. The majority of the development would be landscaped lawn areas along with a road network. The Proposed Action would be designed and constructed in compliance with the MCAS Miramar Marine Corps Fire Department regulations. The cemetery annex design will require review and approval by the Marine Corps Fire Department. The Proposed Action would not result in a significant impact to fire service demand for MCAS Miramar.

Police Service

Similar to the development of the Site 2 Alternative, the Site 4 Alternative would result in an increased demand for military police services at the proposed cemetery annex. The increased demand would be in the form of additional areas to be patrolled. Because the site is under exclusive federal jurisdiction, police service would continue to be provided by the MCAS

Miramar PMO. Since the Proposed Action would not result in an influx of new residents and would only involve approximately 20 new employees working on the site and daily visitors for burial services and visitations, this additional police service demand would not be a significant impact.

Mitigation Measures

There would be no significant impacts to fire protection and police services, and no mitigation measures are proposed.

4.4.3 No Action Alternative

Impacts

No impact to fire protection or police services would occur with this alternative since the proposed cemetery annex would not be constructed and there would be no additional demands on these services.

Mitigation Measures

No mitigation measures are proposed.

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4.5 VISUAL RESOURCES

This section provides a discussion of the visual impacts associated with the proposed alternatives and the area surrounding the proposed project sites related to the viewer groups, viewing opportunities, and quantity of viewers. The viewshed boundary consists of the geographic limits or the area from which the project can be viewed. The viewshed boundary was determined in the field and through analysis of aerial maps. Representative key viewpoints were selected to most clearly display the visual effects of the proposed project within the viewshed boundary. Key views also illustrate views from the primary viewer groups that would potentially be affected by construction and operation of the cemetery annex.

A number of variables affect the degree of visibility, visual contrast, and ultimately project impacts, including (1) scale and size of facilities, (2) viewer types and activities, (3) distance and viewing angle, and (4) influences of adjacent scenery or land uses. Viewer response and sensitivity vary depending on viewer attitudes and expectations. Viewer sensitivity is distinguished among project viewers in identified scenic corridors, and recreational, residential, office, and industrial areas. Recreational areas and scenic corridors are considered to have relatively high sensitivity, residential areas to have moderate sensitivity, and office and industrial areas to have low sensitivity. One mile (1.6 kilometers) is generally the extent at which human-made features are visible; in general, features beyond this zone are so distant that only forms and outlines are discernable and visual impacts are negligible.

The evaluation of visual changes or impact was made based on an assessment of the existing visual character of the landscape seen from each key view and the degree to which the proposed project would change or contrast with the existing (or anticipated) view from that location.

4.5.1 Site 2 Alternative (Preferred Alternative)

A total of four key views (Key Views 1, 2, 3, and 4) have been identified based on the types of project-related features that would be visible, the number and frequency of views, and the potential sensitivity of viewers. Each key view is textually presented in its existing condition and its future condition with implementation of the proposed cemetery annex. The main viewer group of Site 2 would be motorists traveling along the adjacent roadways. In addition, business patrons and workers would have views of Site 2 that are limited to the portion of Miramar Road adjacent to the site. The view from residents and business patrons and workers would potentially be limited to the higher stories in buildings located west of I-805 at the intersection of La Jolla Village Drive and Towne Centre Drive. A view of the entire Site 2 is shown in Figure 4.5-1.



View of Site 2 from the nursery located east of I-805 on Governor Drive looking north.

Figure 4.5-1
Photograph of Site 2 Alternative (Preferred Alternative)

Key View 1: Key View 1 is the view from Nobel Drive looking onto the project site (Figure 4.5-2). Motorists along Nobel Drive would have views of the project when driving along the northwestern site boundary. Viewer sensitivity for motorists on Nobel Drive is moderate-high because of the number of motorists who travel on this roadway daily. The portion of Nobel Drive that is adjacent to Site 2 is located east of I-805 and does not currently support any development on either side of the roadway. Residential development along Nobel Drive is located on the west side of I-805 and does not have views of Site 2.

Key View 2: Key View 2 is the view from Miramar Road looking onto the project site (Figure 4.5-3). Motorists along Miramar Road would have views of the project when driving along the portion of the roadway adjacent to the northern site boundary. Viewer sensitivity for motorists on Miramar Road is moderate-high because of the number of motorists who travel on this roadway daily. The portion of Miramar Road that is adjacent to Site 2 currently supports commercial and business establishments on the north side of the roadway. Additional commercial and business establishments along the south side of Miramar Road are located beside the eastern boundary of Site 2. Workers and patrons of these surrounding businesses would have some views of the project; however, employees working at their jobs are not considered sensitive visual receptors because the majority of the businesses are within buildings. In addition, their business activities involving both workers and patrons are conducted indoors and their priority is not to view the scenery outdoors. Patrons have short-term views, and their trip priority is not to view scenery. For these reasons, viewer sensitivity for workers and patrons is considered low. No residential developments are located along Miramar Road.

Key View 3: Key View 3 is the view from the northeast corner of the property looking onto the project site (Figure 4.5-4). The commercial and business establishments along Miramar Road surrounding the site would support some views of the project by workers and patrons. However, as discussed under Key View 2, employees working at their jobs and patrons are not considered sensitive visual receptors. For these reasons, viewer sensitivity for workers and patrons is considered low.

Key View 4: Key View 4 is the view from the railroad tracks located along the northeastern edge of the property looking toward the project site (Figure 4.5-5). Views from this location are restricted to only the passengers on the trains. Viewer sensitivity for travelers on the trains is considered moderate-high because of the number of people who travel on this railway corridor daily. However, the views from the train are extremely limited since the railroad tracks are at a lower elevation than the site itself.



a. View from Nobel Drive looking south from the proposed main entrance with I-805 in the background.



b. View from Nobel Drive looking east between Miramar Road and the proposed main entrance.

Figure 4.5-2
Key View 1



a. View from Miramar Road looking southwest onto the site.



b. View from Miramar Road looking southeast onto the site.

**Figure 4.5-3
Key View 2**



a. **View from Miramar Road looking west along the northern boundary of the site from the northeast corner of the property.**



b. **View from Miramar Road looking southwest from the northeast corner of the property.**

Figure 4.5-4
Key View 3



a. View from railroad tracks at the northeastern edge of the site looking southeast.



b. View from railroad tracks at the northeastern edge of the site looking northeast.

**Figure 4.5-5
Key View 4**

Impacts

Construction Impacts. As discussed in Chapter 2, efforts to retain the natural state of the site would be made in the construction of the Proposed Action. Grading would be kept to a minimum with a general range from a minimum of 2 percent to no more than 15 percent. Natural features of the site would be preferably left untouched and incorporated into the landscaping. Although construction of the Site 2 Alternative would require access roads and staging on-site, which would be visible from passing motorists on adjacent roadways and workers and patrons associated with the commercial and business establishments bordering the site, construction impacts are considered temporary since there would be a finite time period for this activity.

Operational Impacts. Chapter 2 and Figure 2-1 provide details for development of the Site 2 Alternative at project build-out. In general, a burial section would not exceed 3 acres (1.2 hectares) and would follow topographical features. Each gravesite would have one marker consistent with standard applicable legal requirements for gravesite sizes in cemeteries, which typically use upright markers. Cremated remains would be accommodated either in designated sections or a special garden niche or terrace (in-ground burial); or in a columbarium (niche in an aboveground structure); or in a cremains garden (for the scattering of ashes). Memorial sites and sections would be built in accordance with design standards. The Site 2 Alternative would be visible from passing motorists on adjacent roadways and workers and patrons associated with the surrounding commercial and business establishments bordering the site. However, the facilities at Site 2 at final build-out would have a uniform and consistent design and appearance, which would not be overpowering to the surrounding area. The natural terrain would be preserved to the fullest extent possible, and introduced landscaping would be integrated with native vegetation. The appearance would include single-story structures (Administrative and Maintenance Complexes, Flag Assembly Area, and columbaria); landscaping (lawns, flowers, shrubs, trees, and native species); and well-maintained burial areas. The view would generally be aesthetically pleasing and passive.

Therefore, the proposed cemetery annex at Site 2 would not create significant impacts to visual resources.

Lighting. Minimal lighting would be included with the proposed cemetery annex. No nighttime construction would occur; therefore, no temporary impacts associated with lighting would occur. Security lighting would only be provided for the Administrative Complex and the Maintenance Complex at project build-out and would be at a minimum to meet standard requirements. The

Administrative Complex and the Maintenance Complex would be located in the northern portion of the project site along Miramar Road just west of Eastgate Mall. The security lighting would be consistent with the existing nighttime lighting for the businesses located along Miramar Road and would not introduce a new feature to the surrounding area. The facilities would not be open to the public at night and therefore would not create the need for additional lighting. Night lighting would include low-intensity lights directed downward. Although the Proposed Action may introduce new and additional lighting conditions to the site, the Site 2 Alternative would not create a substantial increase in the light and glare impacts to the surrounding area or affect military operations associated with night aircraft departures.

Plans and Policies. The BEAP provided aesthetic and functional guidelines to accommodate development on MCAS Miramar. It is intended to provide guidelines to direct future project construction, renovation, demolition, and maintenance. The design of these facilities would adhere to applicable guidelines as outlined in the BEAP.

No impacts to visual resources would occur under the Site 2 Alternative (preferred alternative).

Mitigation Measures

Mitigation measures are not proposed under the Site 2 Alternative since no impacts to visual resources would occur.

4.5.2 Site 4 Alternative

Three key views (Key Views 5, 6, and 7) have been identified based on the types of project-related features that would be visible, the number and frequency of views, and the potential sensitivity of viewers. Each key view is textually presented in its existing condition and its future condition with implementation of the Proposed Action. The main viewer group of the Site 4 Alternative would strictly be motorists traveling along the adjacent roadways.

Key View 5: Key View 5 is the view from the Caltrans service yard entrance on Kearny Villa Road looking onto the eastern portion of the site (Figure 4.5-6). Motorists along SR 52, I-15, and SR 163 would have views of the project limited to driving along the perimeter of the site. Motorists on Kearny Villa Road would have the best views of the proposed cemetery annex while driving through Site 4. Viewer sensitivity for motorists on these roadways is moderate-high because of the number of motorists who travel on this roadway daily and the proximity to the site.



a. **View from the Caltrans service yard entrance looking onto the project site east of Kearny Villa Road.**



b. **View from the Caltrans service yard entrance looking onto the project site southeast of Kearny Villa Road.**

**Figure 4.5-6
Key View 5**

Key View 6: Key View 6 is the view from the Caltrans service yard entrance on Kearny Villa Road looking onto the western portion of the site (Figure 4.5-7). Motorists along Kearny Villa Road, SR 52, I-15, and SR 163 would have views of the project limited to driving along the perimeter of the site. Viewer sensitivity for motorists on these roadways is moderate-high because of the number of motorists who travel on this roadway daily and the proximity to the site.

Key View 7: Key View 7 is the view from northbound SR 163 looking onto the western portion of the site (Figure 4.5-8). Motorists along SR 52, I-15, and SR 163 would have views of the project limited to driving along the perimeter of the site while motorists on Kearny Villa Road would have views of the site on both sides of the road. Viewer sensitivity for motorists on these roadways is moderate-high because of the number of motorists who travel on this roadway daily and the proximity to the site.

Impacts

Construction Impacts. As discussed in Chapter 2, efforts to retain the natural state of the site would be made in the construction of the Proposed Action. Grading may be necessary but would be kept to a minimum with a general range from a minimum of 2 percent to no more than 15 percent. Natural features of the site would be preferably left untouched and incorporated into the landscaping. Although construction of Site 4 would require access roads and staging on-site, which would be visible from passing motorists on adjacent roadways, construction impacts are considered temporary since there would be a finite time period for this activity.

Operational Impacts. Chapter 2 and Figure 2-2 provide details for the Site 4 Alternative at project build-out. In general, a burial section would not exceed 3 acres (1.2 hectares) and would follow topographical features. Each gravesite would have one marker consistent with standard applicable legal requirements for gravesite sizes in cemeteries, which typically use upright markers. Cremated remains would be accommodated either in designated sections or a special garden niche or terrace (in-ground burial); or in a columbarium (niche in an aboveground structure); or in a cremains garden (for the scattering of ashes). Memorial sites and sections would be built in accordance with design standards. The Site 4 Alternative would be visible from passing motorists on adjacent roadways. However, the facilities at Site 4 at final build-out would have a uniform and consistent design and appearance, which would not be overpowering to the surrounding area. The natural terrain would be preserved to the fullest extent possible, and introduced landscaping would be compatible with native vegetation. The appearance would



a. **View from the Caltrans service yard entrance looking southwest along Kearny Villa Road with the western portion of the site and SR 163 in the background.**



b. **View from Kearny Villa Road looking northwest onto the western portion of the project site with SR 163 in the background.**

**Figure 4.5-7
Key View 6**



a. View from SR 163 (before the merge with I-15) looking northeast toward the eastern portion of the project footprint.



b. View from SR 163 (before the merge with I-15) looking northeast toward the eastern portion of the project footprint.

Figure 4.5-8
Key View 7

include single-story structures (Administrative Complex, Maintenance Complexes, Flag Assembly Area, and columbaria); landscaping (lawns, flowers, shrubs, trees, and native species); and well-maintained burial areas. The view would generally be aesthetically pleasing and passive. Therefore, the Site 4 Alternative would not create substantial impacts to visual resources.

Lighting. Minimal lighting would be included with the proposed cemetery annex. No nighttime construction would occur and, therefore, no temporary impacts associated with lighting would occur. Security lighting would only be provided for the Administrative and Maintenance Complexes at project build-out and would be at a minimum to meet standard requirements. The Administrative and Maintenance Complexes would be located in the southern portion of the project site along the east side of Kearny Villa Road just north of SR 52. The security lighting would be consistent with the existing nighttime lighting for the businesses located along SR 52 and the Caltrans service yard along Kearny Villa Road. The facilities would not be open to the public at night and therefore would not create the need for additional lighting. Although the Proposed Action may introduce new and additional lighting conditions to the site, the Proposed Action at Site 4 would not create a substantial increase in the light and glare impacts to the surrounding area or affect military operations associated with night flight departures.

Plans and Policies. The design of the proposed cemetery annex facilities would adhere to applicable guidelines as outlined in the BEAP.

No impacts to visual resources would occur under the Site 4 Alternative.

Mitigation Measures

Mitigation measures are not proposed under the Site 4 Alternative since no impacts to visual resources would occur.

4.5.3 No Action Alternative

Impacts

No impacts to visual resources would occur since the proposed cemetery annex would not be constructed under the No Action Alternative.

Mitigation Measures

No mitigation measures are proposed under the No Action Alternative.

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4.6 CULTURAL RESOURCES

Regulatory Background

Federal laws and regulations, including the National Historic Preservation Act (42 USC § 4332); the Native American Graves Protection and Repatriation Act (25 USC § 3001); the American Indian Religious Freedom Act (42 USC § 1996); the Archaeological Resources Protection Act (16 USC § 470aa); Marine Corps Order for Natural Resources Management (MCO P5090.2A); the Marine Corps Order P5750.1, Manual for the Marine Corps Historical Program, identify the Station's regulatory responsibilities concerning cultural resources. These include the need to produce an inventory of resources that are potentially eligible for the National Register, to evaluate these resources for eligibility, and to consider impacts federal projects may have on eligible resources. In addressing impacts, an agency may decide to avoid impacting a resource or mitigate adverse impacts through measures such as data recovery. The Native American Graves Protection and Repatriation Act addresses the requirements for repatriation of Native American human remains and associated funerary objects. The American Indian Religious Freedom Act contains provisions for protection of religious rights, including freedom to worship through ceremony and traditional rites, and access to sites on federal lands. In addition, the Archaeological Resources Protection Act protects sites through penalties for noncompliance with its provisions and provides for authorizing archaeological investigations.

4.6.1 Site 2 Alternative (Preferred Alternative)

Impacts

Five archaeological sites, CA-SDI-12,408, CA-SDI-12,409, CA-SDI-12,410, CA-SDI-12,438, and CA-SDI-12,439 are within the Area of Potential Effects (APE) of the Site 2 Alternative (see Table 3.6-2).

Sites CA-SDI-12,408 and CA-SDI-12,410 have been previously evaluated and determined to not be eligible for the National Register (SHPO 1995). Evaluation of the other three sites, CA-SDI-12,409, CA-SDI-12,438, and CA-SDI-12,439, was conducted as part of this action (York and Bowden-Renna 2006) and was determined to not be eligible for the National Register. In a letter dated 23 October 2006 SHPO concurred (Appendix E). There would be no historic properties affected by implementation of the Site 2 Alternative. Assessment of impacts to cultural resources within the Site 2 Alternative will be made on the basis of these evaluations.

Mitigation Measures

Five sites identified in Site 2 have all been evaluated and determined to be noneligible resources. As no significant resources would be affected, no mitigation measures are proposed.

4.6.2 Site 4 Alternative

Impacts

One archaeological site (CA-SDI-13,718H) is located within the project APE of the Site 4 Alternative. Although implementation of the Site 4 Alternative would impact the southwestern margin of the site, the site has been evaluated and determined to not be eligible for inclusion on the National Register (SHPO 1996); there would be no historic properties affected by implementation of the Site 4 Alternative.

Mitigation Measures

Since no significant resources would be affected, no mitigation measures are proposed.

4.6.3 No Action Alternative

Impacts

Under the No Action alternative, no cultural resources would be impacted.

Mitigation Measures

Since no cultural resources would be impacted, no mitigation measures are proposed.

4.7 BIOLOGICAL RESOURCES

This section analyzes the potential impacts of the Proposed Action on the biological resources within Sites 2 and 4. The site plans for each site are depicted in Figures 2-1 and 2-2 in Chapter 2 of this document. Initially the Site 2 development footprint matched the Site 2 boundary, which was approximately 323 acres (131 hectares) in size. Coordination between the NCA, MCAS Miramar, and the USFWS resulted in several redesigns of the footprint to reduce potential impacts to sensitive biological resources including vernal pool basins and their associated watershed. The redesigns ultimately reduced the footprint to the currently proposed 214-acre (87-hectare) site, a reduction of 109 acres (44 hectares). While master planning and design of the new cemetery annex will take place after a site has been selected, the location of the facilities and burial sites to be developed would stay within the development footprint identified in this Final EIS.

For purposes of this analysis, it is assumed that all the biological resources within the proposed development footprint for each alternative would be permanently, directly impacted; i.e., these resources would be displaced by development. Therefore, there is no analysis for direct, temporary impacts.

Since the Proposed Action would remove all biological resources within the development footprint, there would be no temporary direct or indirect impacts to on-site resources. As such, there is no analysis of temporary direct or indirect impacts to on-site resources. All indirect impacts from the Proposed Action would be limited to biological resources adjacent to the development footprint. Temporary indirect impacts would arise from construction activities, while permanent indirect impacts would arise from the ongoing operation of the Proposed Action.

Biological resources adjacent to the development footprint and in some proximity to construction activities were analyzed for potential indirect impacts where pertinent. Examples of potential off-site, indirect impacts analyzed include:

- increased noise levels that could disrupt the behavior of sensitive animals;
- increased urban runoff on downstream plant communities and sensitive plant populations;
- exotic species invasions into native communities; and
- interference with wildlife movement.

Areas with the potential to support federal listed species were evaluated at two levels. Pursuant to the ESA, the Proposed Action was evaluated to determine a finding of either “no effect” or “may effect” on listed species. In addition, pursuant to NEPA, the habitats that could potentially support federal listed species were evaluated to determine whether the Proposed Action would result in a “significant impact” to these habitats.

Mitigation measures for potential impacts to biological resources would be implemented in accordance with the mitigation planning guidance in the INRMP (MCAS Miramar 2006). This management plan was developed in cooperation with the resource agencies, and appropriate public comments were incorporated into this plan. Conclusions regarding impacts are based on implementing measures described in the subsequent biological resource subsections of this EIS. As discussed in Chapter 6.2 of the INRMP, these measures involve impact avoidance and minimization, habitat compensation for direct loss of vegetation/habitat types, and best management practices (BMPs) for indirect impacts to these resources. In addition to the mitigation measures described in this chapter, formal consultation with the USFWS has been completed and a Biological Opinion was issued on 6 April 2007 (1-6-06-F-4652.3) and is included as Appendix F. All reasonable and prudent measures and terms and conditions of the Biological Opinion will be incorporated as part of the Proposed Action. These measures will avoid or minimize project impacts to below a level of significance.

4.7.1 Site 2 Alternative Impacts (Preferred Alternative)

Direct Impacts

Vegetation and Habitat Types

Permanent Impacts

Table 4.7-1 lists the acreages of vegetation communities that would be permanently, directly impacted by development of the alternative. As currently proposed, development of Site 2 would impact approximately 49.69 acres (20.11 hectares) of chamise chaparral, 33.35 acres (13.50 hectares) of disturbed chamise chaparral, 4.20 acres (1.70 hectares) of burned disturbed chamise chaparral, 34.16 acres (13.82 hectares) of southern mixed chaparral, 0.18 acres (0.07 hectares) of disturbed southern mixed chaparral, 14.67 acres (5.94 hectares) of scrub oak chaparral, 1.18 acres (0.48 hectares) of coastal sage scrub chaparral, 1.19 acres (0.48 hectares) of disturbed coastal sage scrub chaparral, 3.41 acres (1.38 hectares) of Diegan coastal sage scrub, 8.03 acres (3.25 hectares) of disturbed Diegan coastal sage scrub, and 3.33 acres (1.35 hectares) of burned disturbed Diegan

**Table 4.7-1
Permanent Direct Effects to Plant Communities/Land Cover Types
within Site 2 and Proposed Compensation Ratios**

Plant Community/ Land Cover Type	Acres (Hectares) Affected	Proposed Compensation Ratio ¹	Acres (Hectares) of Proposed Compensation
Permanent Direct Effects – Recently Occupied by CAGN			
Diegan Coastal Sage Scrub	3.41 (1.38)	Compensate 2:1	6.82 (2.76)
Disturbed Chamise Chaparral	0.22 (0.09)	Compensate 1:1	0.22 (0.09)
Disturbed Diegan Coastal Sage Scrub	2.20 (0.89)	Compensate 1:1	2.20 (0.89)
Disturbed Southern Mixed Chaparral	0.18 (0.07)	Compensate 1:1	0.18 (0.07)
Disturbed Habitat	0.35 (0.14)	Compensate 0.5:1	0.18 (0.07)
Subtotal	6.36 (2.57)	-	9.60 (3.88)
Permanent Direct Effects – Recently Occupied by CAGN, but Unsuitable			
Non-native Grassland	0.007 (0.003)	N/A	N/A
Disturbed Non-native Grassland	3.28 (1.33)	N/A	N/A
Disturbed Native/Non-native Grassland	3.32 (1.34)	N/A	N/A
Subtotal	6.61 (2.67)	-	-
Permanent Direct Effects – Unoccupied by CAGN			
Burned Disturbed Chamise Chaparral	4.20 (1.70)	N/A	N/A
Burned Disturbed Diegan Coastal Sage Scrub	3.33 (1.35)	0.5:1	1.67 (0.68)
Chamise Chaparral	49.69 (20.11)	N/A	N/A
Coastal Sage Scrub-Chaparral	1.18 (0.48)	1:1	1.18 (0.48)
Developed	1.18 (0.48)	N/A	N/A
Diegan Coastal Sage Scrub	0.02 (0.007)	1:1	0.02 (0.007)
Disturbed Chamise Chaparral	33.13 (13.41)	N/A	N/A
Disturbed Diegan Coastal Sage Scrub	5.83 (2.36)	0.5:1	2.92 (1.18)
Disturbed Habitat	43.90 (17.77)	N/A	N/A
Disturbed Non-Native/Native Grasslands	3.36 (1.36)	N/A	N/A
Disturbed Coastal Sage Scrub Chaparral	1.19 (0.48)	0.5:1	0.59 (0.24)
Non-Native Grassland	4.79 (1.94)	N/A	N/A
Scrub Oak Chaparral	14.67 (5.94)	N/A	N/A
Southern Mixed Chaparral	34.16 (13.82)	N/A	N/A
Subtotal	200.63 (81.21)	-	6.38 (2.58)

¹ Compensation ratios provided here are prescribed in Table 6.2.2.1b of the MCAS Miramar INRMP (MCAS Miramar 2006). As discussed in the INRMP, compensation ratios are less than prescribed in the INRMP when impacts are to disturbed native plant community types, if the proposed compensation has a goal of high-quality native habitats. Thus, these compensation measures have been adjusted to reflect the exchange of low habitat quality for high habitat quality.

coastal sage scrub. In addition, impacts would occur to 6.68 acres (2.70 hectares) of disturbed non-native grassland/native grasslands, 4.80 acres (1.94 hectares) of non-native grassland, and 3.28 acres (1.33 hectares) of disturbed non-native grasslands. Non-vegetated land areas that would be impacted include 1.18 acres (0.48 hectares) of developed lands, and 44.25 acres (17.91 hectares) of disturbed lands. Burned disturbed Diegan coastal sage scrub, coastal sage scrub-chaparral, Diegan coastal sage scrub, and disturbed Diegan coastal sage scrub are considered regionally rare and declining habitats. Impacts to the chaparral communities, non-native grasslands, disturbed habitats, and developed areas would not be significant, as these communities and land types are not considered regionally rare and declining habitats. The area of impacts discussed above are not broken down by CAGN occupancy, but are the total vegetation acreages for the site, regardless of gnatcatcher distributions.

As discussed above, undisturbed and disturbed Diegan coastal sage scrub at Site 2 would be impacted. Large-scale loss of these plant community types (multiple acres) would be a significant impact if not compensated for by permanent preservation accompanied by a one-time contribution for long-term management in the vicinity. Since habitat compensation would be provided, as discussed in the mitigation section, impacts to these communities would not be significant.

Jurisdictional Wetlands and Waters of the United States

Permanent Impacts

Development of Site 2 would impact five ephemeral drainages totaling approximately 3,333 feet (1,015 meters) and 0.230 acre (0.093 hectare). A formal wetland assessment of the functions and values of the wetlands and waters for the project site will be conducted, and this wetland delineation will consist of a jurisdictional delineation (i.e., determining whether stream features are jurisdictional waters or contain jurisdictional wetlands) within proposed permanent impact areas and outside the proposed project footprint for temporary impacts related to construction activities. A formal ACOE jurisdictional determination and delineation report for waters and wetlands will be required for submittal to the ACOE and USFWS to request their review and concurrence of the determination and delineation results. The VA will be responsible for any determination and delineation studies and any subsequent CWA permitting. The studies and permits would be required prior to project construction. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The potential linear and acreage impacts to these ephemeral drainages may be considered more than minimal. Based on this information and the project's plans, it is anticipated that the project's impacts to federal waters and wetlands would require an Individual Permit under the Clean Water Act. In addition,

the submittal of a 401 permit application for construction of the Proposed Action to the Regional Water Quality Control Board would likely be necessary.

Special Status Species

Permanent Impacts

Construction of the Proposed Action at Site 2 may affect SDFS. A total of 634 basins comprising 4.44 acres (1.80 hectares) were found at Site 2. Of these basins, permanent direct impacts would occur to an undetermined number of SDFS within 29 basins (0.309 acre [0.125 hectare]), including 2 vernal pools (0.010 acre [0.004 hectare]). Permanent direct impacts to SDFS would be considered significant. However, measures discussed in the mitigation section in compliance with the INRMP and Biological Opinion (Appendix F) would compensate for impacts such that they would not be significant. Proposed measures are identified in Section 4.7.2.

In addition, a beneficial impact of the construction of the Proposed Action would be a decrease in the edge effects to the X 1-4 vernal pool complex assemblage, resulting from unauthorized entry of the site. Construction and operation of the Proposed Action will remove this access (Appendix F).

Implementation of the Proposed Action at Site 2 would affect CAGN, resulting in permanent direct impacts that would occur through the loss of approximately 12.97 acres (5.25 hectares) of native plant communities recently occupied by the CAGN (Table 4.7-1). Specifically, permanent direct impacts would occur to plant communities recently occupied by the CAGN within the Site 2 Alternative project footprint. These permanent direct impacts to CAGN would be considered significant. However, measures discussed in the mitigation section in compliance with the INRMP and reasonable and prudent measures and terms and conditions of the Biological Opinion (Appendix F) would compensate for impacts such that they would not be significant. Proposed measures are discussed in Section 4.7.2.

None of the recently documented CAGN nest locations, nor the breeding territories mapped in 2004, occur within the Site 2 Alternative project footprint, as the footprint was redesigned several times to avoid recently documented CAGN nest locations and breeding territories. While portions of the home ranges and recently occupied habitat would be impacted, development of the Proposed Action at Site 2 may not result in permanent displacement of the CAGN population. Additionally, these impacts represent the likely worst-case scenario assuming all habitat within the Site 2 Alternative project footprint would be cleared, graded, or developed; final design may reduce impacts to recently occupied CAGN habitat.

Other Species of Regional Special Concern

Permanent Impacts

Any impacts to other plant species of regional special concern at the Site 2 Alternative are best addressed in the context of the sensitive habitat communities, as opposed to considering each plant species individually. Native scrub, chaparral, and grassland habitats on-site provide potential habitat for a number of sensitive plant species, such as Orcutt's brodiaea, Del Mar manzanita, San Diego goldenstar, summer holly, San Diego sunflower, and other sensitive plant species. Some of these species are relatively common on MCAS Miramar, although they are regionally uncommon elsewhere (e.g., Orcutt's brodiaea) within San Diego County. Substantial loss of native habitat occupied by these species that would impact a substantial proportion of the population of any of these species would be significant. Measures discussed in the mitigation section would ensure that impacts would not be significant.

Impacts to other wildlife species of regional special concern are best addressed as elements of sensitive habitat communities, as opposed to considering each individual species. Native scrub and chaparral habitats on-site provide foraging and breeding habitat for many resident and migrating regionally sensitive bird species, such as southern California rufous-crowned sparrow and Bell's sage sparrow, as well as other species such as Hermes copper butterfly, San Diego coast horned lizard, Belding's orange-throated whiptail, birds protected under the MBTA, bats, and other mammal species. These species may be relatively common on MCAS Miramar, although they are regionally uncommon elsewhere within San Diego County. Substantial loss of native habitat occupied by these species that would impact a substantial proportion of the population of any of these species would be significant. However, measures discussed in the mitigation section would ensure that impacts would not be significant.

Habitat Linkages and Corridors

Permanent Impacts

Although Site 2 occupies or is connected to a regionally identified wildlife movement corridor, the open design of the cemetery would not be restrictive to wildlife movement. Additionally, the perimeter fence that would be installed along Miramar Road and Nobel Drive would comply with MCAS Miramar fencing requirements and would also be designed to allow wildlife movement. The fence would be an ornamental with an open appearance and slightly elevated above the ground. Thus, the site would remain connected to the Rose Canyon wildlife corridor.

Small and large mammals, herpetofauna, and birds would still be expected to move between the project site and the Rose Canyon wildlife corridor, and may utilize the cemetery for foraging habitat. Given the large expanse of habitat remaining on West Miramar, as well as the open design of the project for the Site 2 Alternative, impacts to the wildlife corridor are not expected to be significant.

Indirect Impacts

As mentioned previously, it is assumed that the entire project footprint would be permanently, directly impacted by implementation of the Site 2 Alternative. Any indirect impacts to biological resources would be restricted to resources immediately off-site. As such, there is no analysis of indirect impacts to on-site resources in the following discussion of biological resources.

Vegetation/Habitat Types

Temporary Impacts

Compliance with APCD dust control practices, security enforcement during cemetery operation, and construction of perimeter fencing along Miramar Road and Nobel Drive would avoid temporary, indirect impacts to vegetation from construction activities. These measures would avoid fugitive dust emissions, which could otherwise restrict photosynthesis and respiration, or trampling from unauthorized access outside the project footprint.

The construction contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) construction activity storm water discharge permit from the RWQCB (or comply with the terms and conditions of a general permit). Compliance with the NPDES permit would mitigate erosion, sedimentation, and storm water pollutants from construction activities that could otherwise adversely impact off-site vernal pools and downstream riparian habitats in Rose Canyon by altering community dynamics such as species composition and succession. As a result, temporary indirect impacts would not be significant.

Permanent Impacts

The design of the Site 2 Alternative would avoid permanent direct impacts to off-site vegetation in the form of invasion of exotic species in the adjacent native habitats and increased human access that could trample vegetation. Off-site vegetation would not be accessible from the cemetery

development because the visitors would be fenced from the surrounding native vegetation. Use of native plant species for landscaping, in compliance with Executive Order 13148, would avoid off-site impacts from invasive, exotic species. No plant species on the California Invasive Plant Council's Exotic Pest Plant List would be used for cemetery landscaping.

Jurisdictional Wetlands and Waters of the United States

Temporary Impacts

The construction contractor would be required to obtain an NPDES construction activity storm water discharge permit (or comply with the terms and conditions of a general permit). Compliance with the NPDES permit would avoid temporary off-site impacts to any potential downstream wetlands or waters of the United States from increased erosion, sedimentation, or storm water pollutants.

Permanent Impacts

Compliance with applicable municipal storm water pollution prevention requirements at the cemetery, when completed, including permitting and the adoption of BMPs, would avoid permanent impacts from municipal storm water discharges.

Special Status Species

Temporary Impacts

All vernal pools and man-made depressions supporting vernal pool species within the Site 2 Alternative project footprint would be permanently and directly impacted. Thus, no temporary direct loss of basins with SD button-celery or SDFS within the project footprint would occur. Compliance with APCD measures during implementation of the Proposed Action at Site 2 would avoid temporary effects to basins outside the project footprint from construction-generated fugitive dust accumulation. Additionally, cemetery irrigation plans would be designed to avoid or minimize runoff laden with fertilizers and pesticides into adjacent vernal pool basins. In conjunction with these irrigation plans, monitoring of adjacent pools before and after construction would be implemented to ensure continued viability of these pools and their associated special status species.

All vegetation within Site 2 would be permanently, directly impacted; thus, no temporary direct loss of habitat recently occupied by or suitable for CAGN would occur. In off-site areas, compliance with APCD measures during implementation of the Proposed Action would avoid temporary direct effects to CAGN-occupied plant communities within the Site 2 Alternative project footprint by preventing construction-generated fugitive dust accumulation.

Noise levels resulting from construction activities associated with implementation of the Proposed Action at Site 2 are not expected to result in any temporary direct effects to CAGN-occupied plant communities. Within and adjacent to plant communities recently occupied by the CAGN, current ambient noise levels at the Site 2 Alternative are estimated to be 67 to 79 dBA as a result of aircraft taking off and landing at the nearby airfield. Additional traffic noise is generated from I-805 directly to the west, Miramar Road to the north, Nobel Drive to the northwest, and the Atchison Topeka Santa Fe Railroad to the south of Site 2. Construction-generated noise resulting from development of the Proposed Action is anticipated to remain below 65 dBA. Therefore, since the CAGN has continued to nest on-site despite these ambient noise conditions, and the Proposed Action would not result in increased noise levels beyond existing conditions, no additional compensatory measures would be proposed for noise effects.

Additionally, edge effects such as increased human presence and habitat fragmentation may reduce available habitat quality and resources on-site. Increased visual disturbance from human presence may flush foraging CAGNs from prime foraging areas into less suitable areas where there are diminished resources, less cover from predators, or areas with greater CAGN densities, increasing competition for resources.

Permanent Impacts

Permanent indirect impacts or effects to the SD button-celery or SDFS in adjacent pools in the form of exotic species invasion, altered hydrological regimes, or unauthorized human access would be avoided through security enforcement during cemetery operation, protective fencing, implementation of irrigation plans and monitoring of adjacent vernal pool basins, and the use of native and locally adapted plant species for landscaping.

Although the population of willowy monardella in Rose Canyon is over 3 miles (4.8 kilometers) away, any potential permanent or indirect impacts or effects to willowy monardella populations downstream from the project site would be avoided through implementation of BMPs. These BMPs would ensure no increase or decrease in water levels downstream, especially at a distance of 3 miles (4.8 kilometers).

No indirect effects or indirect impacts would occur to the CAGN from implementation of the Proposed Action at Site 2. Potential exotic species invasion or unauthorized human access would be avoided through security enforcement during cemetery operation, protective fencing, and the use of native and locally adapted plant species for landscaping.

Other Species of Regional Special Concern

Temporary Impacts

Other plant species of regional special concern could be temporarily, indirectly impacted by the Site 2 Alternative from unauthorized human access and trampling associated with construction activities. Compliance with APCD dust control practices, security enforcement during cemetery operation, and perimeter fencing would avoid temporary indirect impacts from construction-generated fugitive dust and unauthorized human trespass.

Development of the Proposed Action at Site 2 could temporarily, indirectly impact wildlife species of regional special concern and birds protected under the MBTA through construction activities such as construction noise and unauthorized human access. Security enforcement during cemetery operation and perimeter fencing would avoid temporary indirect impacts from increased human access. Avoidance of habitat-clearing activities during the breeding season of most migratory birds to the maximum extent practicable would avoid potential construction noise impacts. Additionally, noise levels resulting from construction activities with implementation of the Proposed Action at Site 2 are not expected to result in additional temporary direct effects to nesting habitat of most migratory birds at this site. Within and adjacent to Site 2, current ambient noise levels are estimated to be 67 to 79 dBA as a result of aircraft taking off and landing at the nearby airfield. Additional traffic noise is generated from I-805 directly to the west, Miramar Road to the north, Nobel Drive to the northwest, and the Atchison Topeka Santa Fe Railroad to the south of the Site 2 Alternative. Compliance with APCD rules would avoid impacts from construction-generated fugitive dust. Thus, temporary indirect impacts to wildlife species of regional special concern are not expected to be significant.

Permanent Impact

The populations of plant species of regional special concern mentioned above could also be indirectly impacted from the ongoing operations of the Site 2 Alternative by increased human access, trampling, collection, or increased invasion by exotic species. Dust control practices,

perimeter fencing, security enforcement during cemetery operation, and use of native and locally adapted plant species for landscaping, in compliance with Executive Order 13148, would avoid off-site permanent indirect impacts.

No permanent indirect impacts are expected to occur to wildlife species of regional special concern or birds protected under the MBTA. Potential exotic species invasion or unauthorized human access would be avoided through security enforcement during cemetery operation and perimeter fencing and the use of native and locally adapted plant species for landscaping.

Habitat Linkages and Corridors

Temporary Impacts

Temporary impacts to habitat linkages and wildlife corridors could arise from construction activities (construction noise and unauthorized human access). As mentioned previously, Site 2 functions as part of local habitat linkages to the Rose Canyon wildlife corridor. Construction activities are likely to have minimal indirect impacts on this particular movement corridor as the edge of the project footprint is at least 500 feet (152.4 meters) from the canyon bottom. Additionally, noise levels resulting from construction are not expected to result in additional temporary, indirect effects as current ambient noise levels are estimated at 67 to 79 dBA. Also, compliance with APCD rules would avoid construction-generated dust impacts. Finally, security enforcement during cemetery operation and perimeter would be installed to reduce unauthorized access. Thus, these temporary indirect impacts to habitat linkages and corridors would not be significant.

Permanent Impacts

Construction and operation of the Site 2 Alternative would have no permanent indirect impacts on habitat linkages and wildlife corridors, because the project footprint would be at least 500 feet (152.4 meters) from the closest regional wildlife corridor, Rose Canyon.

4.7.2 Site 2 Alternative Mitigation Measures

Significant impacts to biological resources from the Site 2 Alternative would be avoided through implementation of the BMPs and other regulatory requirements discussed previously within the impact sections along with mitigation measures outlined below. In addition, reasonable and prudent measures and terms and conditions as outlined in the Biological Opinion (1-6-06-F-

4652.3) will be incorporated into the Proposed Action design construction, and operation (Appendix F).

Vegetation and Habitat Types

Direct Impacts

Section 6 of the INRMP prescribes compensation ratios to mitigate habitat impacts. When applying the compensation ratios for habitat impacts, the quality of the vegetation/habitat type is taken into consideration. When degraded vegetation/habitat types are involved, the ratios are adjusted to achieve an equivalent compensation. A lower compensation ratio would be appropriate where high-quality habitat is being offered for impacts to a degraded habitat (MCAS Miramar 2006).

Implementation of the following measure would ensure that there would be no significant direct impacts to the Diegan coastal sage scrub:

- Provide habitat compensation at a ratio of 1:1 for habitat unoccupied by listed threatened and endangered species, and at a ratio of 2:1 for occupied habitat. Disturbed habitat that is unoccupied by listed threatened and endangered species would be compensated at a ratio of 0.5:1, and at a ratio of 1:1 for occupied disturbed habitat. Compensation will occur outside of MCAS Miramar within the vicinity, through permanent habitat preservation accompanied by a one-time contribution for long term management. This compensation will be the responsibility of the NCA. For more details, see Special Status Species below.

Indirect Impacts

No significant impacts would occur, and mitigation measures would not be necessary.

Jurisdictional Wetlands and Waters of the United States

Direct Impacts

Impacts to jurisdictional waters would be anticipated with the Proposed Action. Review and approval by the ACOE for all jurisdiction impacts will be needed to determine the final CWA permitting requirements. A formal wetland assessment of the functions and values of the wetlands and waters for the project site will be conducted, and this wetland delineation will consist of a jurisdictional delineation (i.e., determining whether stream features are jurisdictional

waters or contain jurisdictional wetlands) within proposed permanent impacts areas and outside the proposed project footprint for temporary impacts related to construction activities. A formal ACOE jurisdictional determination and delineation report for waters and wetlands will be required for submittal to the ACOE and USFWS to request their review and concurrence of the determination and delineation results. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The results of this assessment in coordination with the ACOE and USFWS will determine the measures required to mitigate for any impacts to the wetland areas. The NCA will be responsible for these studies and the subsequent permitting and mitigation, if required.

Indirect Impacts

No indirect impacts would occur to wetland resources outside the project site due to project design and the implementation of BMPs; therefore, no mitigation measures would be necessary.

Special Status Species

Direct Impacts

For all direct impacts to SDFS, avoidance of impacts to occupied habitat and minimization of disturbance are the first mitigation priority as detailed by the INRMP (MCAS Miramar 2006). All adverse effects to vernal pool habitat supporting SDFS within and adjacent to the Site 2 Alternative will be avoided or minimized to the extent feasible through the final design of the Proposed Action. For example, as feasible, protective fencing and signage will be installed within the cemetery footprint to protect vernal pool habitat in areas not planned for cemetery development. For unavoidable adverse effects to vernal pool habitat supporting SDFS, compensation measures are proposed to offset effects to these species.

Compensation for this species is proposed based on the habitat type and the presence of this federally listed species. Pools with a basin indicative of an origin due to natural processes or purposeful creation/restoration with vernal pool-indicator plant species (unless restoration is in progress) are considered “true” pools. “True” vernal pools with minimum disturbance are considered high-quality (minimum disturbance) vernal pool habitat; man-made depressions created by human disturbance (e.g., ruts, ditches, impoundments, and puddles) are considered as having a low habitat value.

Permanent direct effects to SDFS and the basins supporting this species will be compensated for as follows:

- compensation for permanently, directly affected, relatively undisturbed, vernal pools that support SD fairy shrimp, at a ratio of 3:1;
- compensation for permanently, directly affected, relatively undisturbed or degraded vernal pools without the presence of federally listed species, at a ratio of 1:1 to obtain no net loss; and
- man-made depressions (i.e., ruts, puddles, impoundments, ditches) with SDFS and vernal pool indicator plants at a ratio of 1.5:1.

Compensation for affected vernal pool habitat would occur through restoration/reestablishment of similar quality habitat on MCAS Miramar, within the vicinity of the Proposed Action. This compensation would include the development of a restoration, management, and monitoring plan that will outline the process and guidelines of restoration and reestablishment for off-site vernal pool habitat. The exact locations of compensation lands on MCAS Miramar have yet to be determined, but will occur within the vicinity of Site 2. Final terms of compensation will follow conditions outlined in the Biological Opinion (Appendix F).

Final planning and design of the proposed annex would ensure that the hydrological and biogeochemical functions of the vernal pool watersheds would be maintained. The NCA will coordinate with the USEPA, ACOE, USFWS, and RWQCB to obtain their input on design and incorporation of site-specific BMPs.

The compensation for affected vernal pool habitat as described above is proposed for the acreage amounts provided in Table 4.7-2.

For all direct impacts to CAGN, avoidance of impacts to occupied habitat and minimization of disturbance are the first mitigation priority as detailed by the INRMP (MCAS Miramar 2006). All adverse effects on plant communities within and adjacent to the Site 2 Alternative that support or have the potential to support the CAGN will be avoided or minimized to the extent feasible through the design of the Proposed Action. While grassland habitats occur within the recently occupied CAGN area, grasslands provide little habitat value, and, as such, do not warrant compensation. Implementation of BMPs, including a Storm Water Pollution Protection Plan (SWPPP) and erosion control measures, will also be utilized. Measures are proposed to offset unavoidable adverse effects to areas recently occupied by the CAGN that occur within the Site 2 Alternative.

**Table 4.7-2
Permanent Direct Effects from Construction Activities to Vernal Pool Species
within Site 2 and Proposed Compensation Ratios**

Habitat Categories	Number of Basins	Acres (Hectares) Affected	Proposed Compensation Ratio¹	Acres (Hectares) of Proposed Compensation
Vernal pools with SDFS	2	0.010 (0.004)	3:1	0.030 (0.012)
Vernal pools with no federally listed species	4	0.013 (0.005)	1:1	0.013 (0.005)
Man-made depressions with SDFS and vernal pool indicator plants	27	0.299 (0.121)	1.5:1	0.449 (0.182)
Totals	33	0.322 (0.130)	-	0.492 (0.199)

¹ Compensation ratios provided here are prescribed in Table 6 of the MCAS Miramar INRMP (MCAS Miramar 2006). As discussed in the INRMP, compensation ratios are less than described in Table 6.2.2.1b of the INRMP, where disturbed or degraded habitat is impacted and proposed compensation has a goal of a high-quality end state, and thus have been adjusted accordingly.

Permanent direct effects to these plant communities would be compensated for as follows:

- compensation for permanently, directly affected undisturbed and suitable native plant communities recently occupied by the CAGN at a ratio of 2:1;
- compensation for permanently, directly affected disturbed and suitable native plant communities recently occupied by the CAGN at a ratio of 1:1;
- compensation for permanently, directly affected disturbed habitat recently occupied by the CAGN at a ratio of 0.5:1; and
- compensation for permanently, directly affected regionally rare but unoccupied plant communities at a ratio of 1:1 for undisturbed habitat and at a ratio of 0.5:1 for disturbed habitats.

Compensation for affected plant communities is proposed through acquisition of habitat for permanent preservation accompanied by a one-time contribution for long-term management. Where impacts to low-quality habitat types are to be compensated by the establishment of higher-quality habitat, compensation ratios are reduced accordingly to achieve equitable compensation. The locations of compensation lands are anticipated to be within the East Fortuna Mountain Preserve within Mission Trails Regional Park. Compensation may be fulfilled by acquisition of land for permanent preservation with a one-time contribution for long-term

management protected habitat acreage as discussed previously. Final terms of compensation will follow conditions outlined in the Biological Opinion (1-6-06-F-4652.3).

The compensation ratio for affected plant communities as described above is proposed for the acreage amounts provided in Table 4.7-1.

It should be noted that a portion of the Site 2 Alternative contains a mitigation area from previous government actions for the BRAC (Defense Base Closure and Realignment Act). This mitigation area is within the preferred alternative area but is not in the development footprint, so no direct impacts would occur to this previous mitigation area.

Due to the direct impacts to SDFS and CAGN that would result from implementation of the Proposed Action at Site 2, a consultation with the USFWS as required under Section 7 of the federal ESA has been completed, resulting in Biological Opinion 1-6-06-F-4652.3 (Appendix F). As mentioned previously, all reasonable and prudent measures and terms and conditions of the Biological Opinion will be incorporated into the Proposed Action.

Indirect Impacts

Compliance with APCD measures during implementation of the Proposed Action at Site 2, implementation of carefully designed stormwater management, and implementation of irrigation plans in conjunction with pre- and post-construction monitoring of adjacent basins, will avoid temporary effects to basins with special status species outside the development footprint area. These measures will prevent construction-generated fugitive dust accumulation, and avoid or minimize chemical alterations of vernal pools from fertilizers and runoff. If construction-generated runoff results in adverse effects to viability of basins and associated special status species during monitoring efforts, an adaptive management plan will be implemented to reduce these effects. Additionally, an integrated pest management plan (IPM) will be implemented to avoid or minimize exotic species impacts.

Indirect, temporary impacts to CAGN would occur as a result of construction of the Site 2 Alternative. Perimeter fencing and security enforcement during cemetery operation designed into the Proposed Action will avoid temporary indirect impacts from increased human access, while compliance with APCD rules will avoid impacts from construction-generated fugitive dust.

Other Species of Regional Special Concern

Direct Impacts

Implementation of the following measures will ensure that there will be no significant direct impacts to the various species of regional special concern that have a potential to occur or are known to occur within the Site 2 Alternative.

- Relocate plants to suitable habitat outside the project area through either transplantation (e.g., San Diego barrel cactus), seed collection (e.g., long-spined spineflower), or bulb salvaging (e.g., San Diego goldenstar). The number of individuals transplanted and/or number of seeds collected or bulbs salvaged would be such to ensure that a representative sample of the genetic variability of the impacted populations is collected.
- Seeds of the sensitive shrub species would be collected and used for propagation, and an attempt would be made to establish off-site populations from individuals propagated from the collected seed or from transplanted individuals.
- Any sensitive bulb species (e.g., San Diego goldenstar) would be salvaged, and an attempt would be made to transplant the salvaged bulbs within off-site grassland habitats.
- Seeds and plants of the sensitive annual species (e.g., long-spined spineflower) may be collected and salvaged and used as inoculum in permanently preserved habitat off-site, depending upon the mitigation site and whether these species would be appropriate to plant in this area.
- Compensation for the loss of regionally rare vegetation/habitat types described for direct impacts to these types would also compensate for the loss of habitat types for species of regional special concern.
- Habitat-clearing activities would be timed to avoid the breeding season of most migratory birds to the maximum extent practicable to avoid damage to active bird nests. If habitat clearing outside of the breeding season is not feasible, the contractor(s) would coordinate with the USFWS to obtain a permit to impact migratory birds.

Indirect Impacts

Temporary, indirect impacts to species of regional special concern and birds protected under the MBTA are not expected to be significant, and no permanent indirect impacts are expected. No mitigation measures would be necessary.

Habitat Linkages and Corridors

Direct Impacts

No significant direct impacts are expected to occur to habitat linkages and corridors; thus, no mitigation would be necessary.

Indirect Impacts

Temporary, indirect impacts to wildlife corridors are not expected to be significant, and no permanent indirect impacts are expected. Therefore, no mitigation would be necessary.

4.7.3 Site 4 Alternative Impacts

Direct Impacts

Vegetation and Habitat Types

Permanent Impacts

Table 4.7-3 lists the acreages of vegetation communities and land cover types that would be permanently, directly impacted by implementation of the Site 4 Alternative. The areas of impacts discussed below are not broken down by gnatcatcher occupancy, but are the total vegetation acreages for the site, regardless of gnatcatcher distribution. As currently proposed, development of the Site 4 Alternative would impact approximately 2.89 acres (1.17 hectares) of chamise chaparral, 12.82 acres (5.19 hectares) of disturbed chamise chaparral, 0.03 acre (0.01 hectare) of coastal sage scrub-chaparral, 12.54 acres (5.08 hectares) of disturbed Diegan coastal sage scrub, 12.60 acres (0.65 hectare) of disturbed southern mixed chaparral, 0.49 acre (0.20 hectare) of coast and valley freshwater marsh, 0.68 acre (0.28 hectare) of disturbed coastal and valley fresh water marsh, 0.99 acre (0.40 hectare) of disturbed vernal marsh, 24.82 acres (10.05 hectares) of disturbed habitat, 24.90 acres (10.08 hectares) of disturbed non-native grassland, 1.10 acres (0.44 hectare) of non-native grassland, and 6.92 acres (2.80 hectares) of developed lands. The coastal sage scrub-

chaparral and Diegan coastal sage scrub are considered regionally rare and declining habitats. Impacts to chaparral communities, non-native grasslands, disturbed habitats, and developed areas would not be significant, as these communities would not be significant.

**Table 4.7-3
Permanent Direct Effects to CAGN Recently Occupied/Unoccupied
Plant Communities/Land Cover Types within Site 4 and Proposed Compensation Ratios**

Plant Community/ Land Cover Type	Acres (Hectares) Affected	Proposed Compensation Ratio¹	Acres (Hectares) of Proposed Compensation
Permanent Direct Effects – Recently Occupied by CAGN			
Disturbed Diegan Coastal Sage Scrub	4.22 (1.71)	Compensate 1:1	4.22 (1.71)
Disturbed Habitat	10.64 (4.31)	Compensate 0.5:1	5.32 (2.16)
Subtotal	14.86 (6.02)	–	9.54 (3.87)
Permanent Direct Effects – Recently Occupied by CAGN, but Unsuitable			
Disturbed Non-native Grassland	0.003 (0.001)	N/A	N/A
Developed	0.02 (0.008)	N/A	N/A
Subtotal	0.023 (0.009)	–	–
Permanent Direct Effects – Unoccupied by CAGN			
Chamise Chaparral	2.89 (1.17)	N/A	N/A
Coastal Sage Scrub-Chaparral	0.03 (0.01)	1:1	0.03 (0.01)
Coast and Valley Freshwater Marsh	0.49 (0.20)	N/A	N/A
Developed	6.90 (2.79)	N/A	N/A
Disturbed Chamise Chaparral	12.82 (5.19)	N/A	N/A
Disturbed Diegan Coastal Sage Scrub	8.32 (3.37)	0.5:1	4.16 (1.69)
Disturbed Coastal and Valley Fresh Water Marsh	0.68 (0.28)	N/A	N/A
Disturbed Habitat	14.18 (5.74)	N/A	N/A
Disturbed Non-Native Grasslands	24.90 (10.08)	N/A	N/A
Disturbed Southern Mixed Chaparral	1.60 (0.65)	N/A	N/A
Disturbed Vernal Marsh	0.99 (0.40)	N/A	N/A
Non-Native Grassland	1.10 (0.44)	N/A	N/A
Subtotal	74.90 (30.30)	–	4.19 (1.69)

¹ Compensation ratios provided here are prescribed in Table 6.2.2.1b of the MCAS Miramar INRMP (MCAS Miramar 2006). As discussed in the INRMP, compensation ratios are less than prescribed in the INRMP when impacts are to disturbed native plant community types, if the proposed compensation has a goal of high-quality native habitats. Thus, these compensation measures have been adjusted to reflect the exchange of low habitat quality for high habitat quality.

As discussed above, disturbed Diegan coastal sage scrub at the Site 4 Alternative would be impacted. Large-scale loss of these plant community types (multiple acres) would be a significant impact if not compensated for elsewhere. Since habitat compensation would be provided, as discussed in the mitigation section, impacts to these communities would not be significant.

Jurisdictional Wetlands and Waters of the United States

Permanent Impacts

Development of the Site 4 Alternative would impact three ephemeral drainages totaling approximately 2,310 feet (704 meters) and 0.160 acre (0.064 hectare). A formal wetland assessment of the functions and values of the wetlands and waters for the project site will be conducted, and this wetland delineation will consist of a jurisdictional delineation (i.e., determining whether stream features are jurisdictional waters or contain jurisdictional wetlands) within proposed permanent impact areas and outside the proposed project footprint for temporary impacts related to construction activities. A formal ACOE jurisdictional determination and delineation report for waters and wetlands will be required for submittal to the ACOE and USFWS to request their review and concurrence of the determination and delineation results. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The results of this assessment in coordination with the ACOE and USFWS will determine the measures required to mitigate for any impacts to the wetland areas.

Special Status Species

Permanent Impacts

Construction of the Proposed Action at Site 4 may affect SD mesa mint and SDFS. A total of 492 basins comprising 6.65 acres (2.69 hectares) were found at Site 4. Of these basins, permanent direct impacts would occur to SD mesa mint and/or SDFS within 50 basins (0.585 acre [0.237 hectare]), including 25 vernal pools (0.261 acre [0.106 hectare]). Of these 50 basins, permanent direct impacts would occur to 2 vernal pools with both SD mesa mint and SDFS, totaling 0.097 acre (0.039 hectare). Forty-eight basins (0.489 acre [0.198 hectare]), including 23 vernal pools (0.164 acre [0.067 hectare]) with only SDFS, would be permanently, directly impacted. Permanent direct impacts to SD mesa mint and SDFS would be considered significant.

Although CAGN habitat on Site 4 burned in 2003, this habitat is assumed to eventually regrow sufficiently to support CAGN occupation. Thus, implementation of the Proposed Action at Site 4 may effect CAGN, resulting in permanent direct impacts through the loss of approximately 14.86 acres (6.02 hectares) of native plant communities and land cover types recently occupied by the CAGN (Table 4.7-3). Specifically, permanent direct impacts would occur to plant

communities recently occupied by the CAGN within the Site 4 Alternative project footprint. These permanent direct impacts to CAGN would be considered significant.

Other Species of Regional Special Concern

Permanent Impacts

Any impacts to other plant species of regional special concern at the Site 4 Alternative are best addressed in the context of the sensitive habitat communities, as opposed to considering each plant species individually. Native scrub, chaparral, and grassland habitats on-site provide potential habitat for a number of sensitive plant species, such as Orcutt's brodiaea, Del Mar manzanita, San Diego goldenstar, summer holly, San Diego sunflower, and other sensitive plant species. Some of these species are relatively common on MCAS Miramar, although they are regionally uncommon elsewhere (e.g., Orcutt's brodiaea) within San Diego County. Substantial loss of native habitat occupied by these species would significantly impact these species, but measures discussed in the mitigation section would ensure that impacts would not be significant.

Habitat Linkages and Corridors

Permanent Impacts

Implementation of the Proposed Action at Site 4 would not directly impact any habitat linkages or regional or local corridors identified by the INRMP. This site exists as an area isolated from connectivity with open space areas on MCAS Miramar, entirely surrounded by I-15, SR 163, SR 52, and Kearny Villa Road.

Indirect Impacts

As mentioned previously, it is assumed that the entire project footprint would be permanently, directly impacted by implementation of the Site 4 Alternative. Any indirect impacts to biological resources would be restricted to resources immediately off-site. As such, there is no analysis of indirect impacts to on-site resources in the following discussion of biological resources.

Vegetation/Habitat Types

Temporary Impacts

Compliance with APCD dust control practices and implementation of security enforcement during cemetery operation and protective fencing around off-site, regionally rare vegetation and habitat types would avoid temporary, indirect impacts to vegetation from construction activities. These measures would avoid fugitive dust emissions, which could otherwise restrict photosynthesis and respiration, or trampling from unauthorized access outside the project footprint.

The construction contractor would be required to obtain an NPDES construction activity storm water discharge permit from the RWQCB (or comply with the terms and conditions of a general permit). Compliance with the NPDES permit would mitigate erosion, sedimentation, and storm water pollutants from construction activities that could otherwise adversely impact off-site vernal pools and downstream riparian habitats in Rose Canyon by altering community dynamics such as species composition and succession. As a result, temporary indirect impacts would not be significant.

Permanent Impacts

The design of the Site 4 Alternative would avoid permanent direct impacts to off-site vegetation in the form of invasion of exotic species in the adjacent native habitats and increased human access that could trample vegetation. Off-site vegetation would not be accessible from the cemetery development because the visitors would be fenced from the surrounding native vegetation. Use of native plant species for landscaping, in compliance with Executive Order 13148, would avoid off-site impacts from invasive, exotic species. No plant species on the California Invasive Plant Council's Exotic Pest Plant List would be used for cemetery landscaping.

Jurisdictional Wetlands and Waters of the United States

Temporary Impacts

The construction contractor would be required to obtain an NPDES construction activity storm water discharge permit (or comply with the terms and conditions of a general permit). Compliance with the NPDES permit would avoid temporary off-site impacts to any potential

downstream wetlands or waters of the United States from increased erosion, sedimentation, or storm water pollutants.

Permanent Impacts

Compliance with applicable municipal storm water pollution prevention requirements at the cemetery, when completed, including permitting and the adoption of BMPs, would avoid permanent impacts from municipal storm water discharges.

Special Status Species

Temporary Impacts

All vernal pools and man-made depressions supporting vernal pool species within the project footprint of the Site 4 Alternative would be permanently and directly impacted. Thus, no temporary direct loss of basins with SD mesa mint or SDFS may occur. In off-site areas, compliance with APCD measures during implementation of the Proposed Action at Site 4 and implementation of properly designed irrigation plans and pre- and post- monitoring of vernal pools to ensure viability of these basins as discussed in 4.7.1 would avoid and minimize temporary effects to basins outside the project footprint resulting from construction-generated fugitive dust accumulation and altered chemical and hydrological regimes.

Similar to the Site 2 Alternative, all vegetation within the Site 4 Alternative would be permanently, directly impacted; thus, no temporary direct loss of habitat recently occupied by (if CAGNs recolonize the area with numbers similar to pre-Cedar Fire conditions) or suitable for CAGN would occur. In off-site areas, implementation of APCD measures during implementation of the Proposed Action would avoid temporary direct effects to CAGN-occupied plant communities within the Site 4 Alternative by preventing construction-generated fugitive dust accumulation.

Noise levels resulting from construction activities associated with implementation of the Proposed Action at Site 4 are not expected to result in any temporary direct effects to CAGN-occupied plant communities. Within and adjacent to the Site 4 Alternative, current ambient noise levels from aircraft are estimated to range from approximately 69 to less than 80 dBA. Additional noise is generated from vehicles on I-15, SR 163, SR 52, and Kearny Villa Road. I-15 is adjacent to the eastern site boundary; SR 163 is adjacent to the western site boundary; SR 52 is adjacent to the southern site boundary; and Kearny Villa Road passes through the site.

Therefore, since the CAGN has continued to nest on-site despite these ambient noise conditions, no additional compensatory measures would be proposed for noise effects.

Permanent Impacts

Permanent indirect impacts or effects to the SD mesa mint or SDFS in adjacent pools in the form of exotic species invasion, altered hydrological regimes, or unauthorized human access would be avoided through security enforcement during cemetery operation, protective fencing, the use of native and locally adapted plant species for landscaping, and implementation of irrigation plans and monitoring of adjacent vernal pool basins.

Permanent or indirect impacts or effects to willowy monardella populations downstream from the project site would be avoided through implementation of BMPs. These BMPs would ensure no increase or decrease would occur in water levels downstream.

No effects or indirect impacts would occur to the CAGN from implementation of the Proposed Action at Site 4. Potential exotic species invasion or unauthorized human access would be avoided through security enforcement during cemetery operation and protective fencing and the use of native and locally adapted plant species for landscaping.

Other Species of Regional Special Concern

Temporary Impacts

Development of the Site 4 Alternative could temporarily, indirectly impact wildlife species of regional special concern and birds protected under the MBTA through construction activities such as construction noise and unauthorized human access. Perimeter fencing and security enforcement during cemetery operation would avoid temporary indirect impacts from increased human access. Avoidance of habitat-clearing activities during the breeding season of most migratory birds to the maximum extent practicable would avoid potential construction noise impacts. Additionally, noise levels resulting from construction activities with implementation of the Proposed Action at Site 4 are not expected to result in additional temporary direct effects to nesting habitat of most migratory birds at this site. Within and adjacent to the Site 4 Alternative, current ambient noise levels from aircraft are estimated to range from approximately 69 to less than 80 dBA. Additional noise to the site comes from vehicles on I-15, SR 163, SR 52, and Kearny Villa Road. I-15 is adjacent to the eastern site boundary; SR 163 is adjacent to the western site boundary; SR 52 is adjacent to the southern site boundary; and Kearny Villa Road

passes through the site. Compliance with APCD rules would avoid impacts from construction-generated fugitive dust. Thus, temporary indirect impacts to wildlife species of regional special concern are not expected to be significant.

Permanent Impacts

The populations of plant species of regional special concern mentioned above could also be indirectly impacted from the ongoing operations of the Site 4 Alternative by increased human access, trampling, collection, or increased invasion by exotic species. Dust control practices, protective fencing, and use of native and locally adapted plant species for landscaping, in compliance with Executive Order 13148, would avoid off-site permanent indirect impacts.

No permanent indirect impacts are expected to occur to wildlife species of regional special concern or birds protected under the MBTA. Potential exotic species invasion or unauthorized human access would be avoided through security enforcement during cemetery operation and protective fencing and the use of native and locally adapted plant species for landscaping.

Habitat Linkages and Corridors

Temporary Impacts

Temporary impacts to habitat linkages and wildlife corridors are not anticipated from implementation of the Proposed Action at Site 4. The nearest local wildlife corridor is San Clemente Canyon, approximately 1,000 feet (304.8 meters) to the northwest of the Site 4 Alternative.

Permanent Impacts

No permanent impacts to habitat linkages and wildlife corridors are expected from construction at Site 4, as the nearest local wildlife corridor is San Clemente Canyon, approximately 1,000 feet (304.8 meters) to the northwest of the Site 4 Alternative.

4.7.4 Site 4 Alternative Mitigation Measures

Significant impacts to biological resources from the Site 4 Alternative would be avoided through implementation of BMPs, and other regulatory requirements, discussed previously within the impact sections, along with mitigation measures outlined below.

Vegetation and Habitat Types

Direct Impacts

Section 6 of the INRMP prescribes compensation ratios to mitigate habitat impacts. When applying the compensation ratios for habitat impacts, the quality of the vegetation/habitat type is taken into consideration. When degraded vegetation/habitat types are involved, the ratios are adjusted to achieve an equivalent compensation. A lower compensation ratio would be appropriate where high-quality habitat is being offered for impacts to a degraded habitat (MCAS Miramar 2006).

Implementation of the following measure would ensure no significant direct impacts would occur to the Diegan coastal sage scrub:

- Provide habitat compensation at a ratio of 1:1 for habitat unoccupied by listed threatened and endangered species, and at a ratio of 2:1 for occupied habitat. Disturbed habitat that is unoccupied by listed threatened and endangered species would be compensated at a ratio of 0.5:1, and at a ratio of 1:1 for occupied disturbed habitat. CAGN habitat that burned in the 2003 Cedar Fire on Site 4 is assumed to eventually regrow sufficiently to support CAGN occupation. Compensation will occur outside of MCAS Miramar within the vicinity, through acquisition of habitat for permanent preservation accompanied by a one-time contribution for long-term management. For more details, see Special Status Species below.

Indirect Impacts

No significant impacts would occur, and mitigation measures would not be necessary.

Jurisdictional Wetlands and Waters of the United States

Direct Impacts

A formal wetland assessment of the functions and values of the wetlands and waters for the project site will be conducted, and this wetland delineation will consist of a jurisdictional delineation (i.e., determining whether stream features are jurisdictional waters or contain jurisdictional wetlands) within proposed permanent impacts areas and outside the proposed project footprint for temporary impacts related to construction activities. A formal ACOE jurisdictional determination and delineation report for waters and wetlands will be required for

submittal to the ACOE and USFWS to request their review and concurrence of the determination and delineation results. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The results of this assessment in coordination with the ACOE and USFWS will determine the measures required to mitigate for any impacts to the wetland areas.

Indirect Impacts

No indirect impacts would occur to wetland resources outside the project site due to project design and the implementation of BMPs; therefore, no mitigation measures would be necessary.

Special Status Species

Direct Impacts

For all direct impacts to SD mesa mint and SDFS, avoidance of impacts to occupied habitat and minimization of disturbance are the first mitigation priority as detailed by the INRMP (MCAS Miramar 2006). All adverse effects to vernal pool habitat supporting SD mesa mint and SDFS within and adjacent to the Site 4 Alternative will be avoided or minimized to the extent feasible through the design of the Proposed Action. For unavoidable adverse effects to vernal pool habitat supporting SD mesa mint and SDFS, compensation measures are proposed to offset effects to these species. Compensation for these two species would be similar to those discussed for the Site 2 Alternative. The compensation for affected vernal pool habitat as described for the Site 2 Alternative is similar to the Site 4 Alternative and is proposed for the acreage amounts provided in Table 4.7-4.

As discussed for the Site 2 Alternative, avoidance of impacts to CAGN-occupied habitat and minimization of disturbance are the first mitigation priority as detailed by the INRMP (MCAS Miramar 2006). All adverse effects to plant communities within and adjacent to the Site 4 Alternative that support or have the potential to support the CAGN will be avoided or minimized to the extent feasible through the design of the Proposed Action. While grassland habitats and developed land occur within the recently occupied CAGN area, these habitats and land cover type provide little habitat value, and, as such, will not warrant compensation. Implementation of BMPs, including a SWPPP and erosion control measures, will also be utilized. Measures are proposed to offset unavoidable adverse effects to areas recently occupied by the CAGN that

Table 4.7-4
Permanent Direct Effects from Construction Activities to Vernal Pool Species
within Site 4 and Proposed Compensation Ratios

Habitat Categories	Number of Basins	Acres (Hectares) Affected	Proposed Compensation Ratio¹	Acres (Hectares) of Proposed Compensation
Vernal pools with SD mesa mint, and/or SDFS	25	0.261 (0.106)	3:1	0.783 (0.318)
Vernal pools with no federally listed species	33	0.153 (0.062)	1:1	0.153 (0.062)
Man-made depressions with SDFS and vernal pool indicator plants	25	0.325 (0.131)	1.5:1	0.488 (0.197)
Totals	83	0.739 (0.299)	-	1.424 (0.577)

¹ Compensation ratios provided here are prescribed in Table 6.2.2.1b of the MCAS Miramar INRMP (MCAS Miramar 2006). As discussed in the INRMP, compensation ratios are less than prescribed in the INRMP where disturbed or degraded habitat is impacted and proposed compensation has a goal of a high-quality end state and thus have been adjusted accordingly.

occur within the Site 4 Alternative. These measures are similar to those described for the Site 2 Alternative. Likewise, locations of compensation lands would be anticipated to occur within the East Fortuna Mountain Preserve in Mission Trails Regional Park. Compensation may be fulfilled by acquisition of land for permanent preservation with a one-time contribution for long-term management. Final terms of compensation will follow conditions outlined in a biological opinion issued under consultation between NCA and USFWS should the Site 4 Alternative be selected.

The same compensation ratio for affected plant communities that was described for the Site 2 Alternative would be utilized for the Site 4 Alternative and is proposed for the acreage amounts provided in Table 4.7-3.

Indirect Impacts

Compliance with APCD rules during implementation of the Proposed Action at Site 4, and implementation of carefully designed stormwater management and properly designed irrigation plans in conjunction with pre- and post-construction monitoring of the adjacent basins to ensure viability of these basins and their associated special status species will avoid or minimize temporary effects. If construction-generated runoff results in adverse effects to viability of basins and associated special status species during monitoring efforts, an adaptive management plan

will be implemented to reduce these effects. Additionally, an IPM will be implemented to avoid or minimize exotic species impacts.

Indirect, temporary impacts to CAGN (if CAGNs recolonize the area with numbers similar to pre-Cedar Fire conditions) would occur as a result of construction of the Site 4 Alternative. Security enforcement during cemetery operation and perimeter fencing designed into the Proposed Action would avoid temporary indirect impacts from increased human access, while compliance with APCD rules avoid impacts from construction-generated fugitive dust.

Other Species of Regional Special Concern

Direct Impacts

Direct impacts to other species of regional special concern are similar to those described for the Site 2 Alternative; thus, mitigation described for direct impacts to other species of regional special concern would be similar to those measures described for the Site 2 Alternative.

Indirect Impacts

Temporary, indirect impacts to species of regional special concern and birds protected under the MBTA are not expected to be significant, and no permanent indirect impacts are expected. No mitigation measures would be necessary.

Habitat Linkages and Corridors

Direct Impacts

No significant direct impacts are expected to occur to habitat linkages and corridors; thus, no mitigation would be necessary.

Indirect Impacts

Temporary, indirect impacts to wildlife corridors are not expected to be significant, and no permanent indirect impacts are expected. Therefore, no mitigation would be necessary.

4.7.5 No Action Alternative

Impacts

Under the No Action Alternative, no cemetery annex would be constructed or operated and biological resources would remain in their current condition. Thus, there would be no impacts to biological resources.

4.7.6 No Action Alternative

Mitigation Measures

No impacts to biological resources would occur; therefore, no mitigation measures are proposed.

4.8 SOILS AND GEOLOGY

Significance of impacts associated with faulting, ground acceleration, and ground shaking are evaluated based on distance to known fault zones as well as the seismic characteristics of fault zones. Soils that possess a moderate to severe potential for erosion and liquefaction could result in significant impacts to a proposed action. In addition, soils that are prone to sliding could result in significant impacts on proposed development.

4.8.1 Site 2 Alternative (Preferred Alternative)

Impacts

Geology and Seismicity

Site 2 is located in a highly active seismic region. Several of the faults and fault zones in southern California such as the Rose Canyon Fault zone are capable of causing major damage and destruction from ground acceleration and associated ground shaking. The new cemetery annex facilities would be constructed in compliance with the Uniform Building Code criteria and/or the latest seismic design criteria. Site 2 is not directly underlain by any known faults or fault-related features and, therefore, impacts associated with ground rupture are not expected. Where near-surface, poorly consolidated alluvial soils underlie drainages, the potential for liquefaction is moderate to high. Potential impacts from liquefaction would be controlled through the construction, design, and operation measures discussed below and would be less than significant.

Topography

Two major ravines associated with Rose Canyon are located on-site with the remainder of the site being fairly level and developable. This type of terrain is preferred by the NCA for cemetery development. The grade of burial areas would range from 2 to 15 percent with sufficient slope to enable proper drainage of the site. For the most part, ravines, wetlands, and drainages would not be developed. The topography would not present a major constraint to the proposed cemetery annex development and the proposed development would not result in significant impacts to the topography of the site.

Soils

Soils that underlie Site 2 have a low settlement potential and a severe potential for erosion once exposed by construction activities. The Proposed Action would include grading for gravesites and support facilities such as roads, parking, and building pads. The partial or complete removal of groundcover by construction activities would openly expose soil that can, under certain natural or man-made conditions, erode the surface. Soil erosion by wind, water, or artificial movement (grading activities, vehicle tires, etc.) can cause soil migration and consequential sedimentation in downstream watercourses and water bodies. Erosion can be destructive to topsoil, causing a loss of fertility and vegetative cover; native habitat; habitat-dependent birds and animals; and property, especially when it is accelerated by human activity.

NPDES permits for general construction activity are required for all storm water discharges associated with a construction activity where clearing, grading, and excavation results in a land disturbance of 1 or more acres (0.4 or more hectare). The area to be graded would be greater than 1 acre (0.4 hectare) and the Proposed Action would therefore require an NPDES permit for general construction activity. The general NPDES permit requires development and implementation of a SWPPP emphasizing BMPs. This approach provides the flexibility necessary to establish control practices that effectively identify the sources of pollutants in storm water and adequately reduce those pollutant discharges.

Typical BMPs to reduce pollutant discharge include revegetation and construction and post-construction erosion and sediment controls such as water bars on the cut vegetation, bonded fiber matrix with native seed materials, earthen berms, fiber rolls, gravel bags, or silt fences. Based on the implementation of BMPs, as necessary and identified in the SWPPP, and the implementation of the construction and design measures outlined below, soils-related impacts would be less than significant.

Construction, Design, and Operational Measures

Implementation of this alternative would include several construction measures that would be implemented during construction of the proposed cemetery annex. In addition, design and operational measures would be implemented as part of the Proposed Action.

- A site-specific geotechnical investigation (or soil and foundation report) shall be performed to further evaluate and identify other potential geologic hazards and soils concerns. The investigation shall provide site-specific geotechnical recommendations for design and

construction. The geotechnical investigation shall also address soil sedimentation and expansion, and erosion and sedimentation.

- Proposed cemetery annex structures shall be designed to tolerate anticipated groundshaking from future earthquakes. At a minimum, the project shall comply with the seismic design criteria identified in the Uniform Building Code or in accordance with the latest design criteria of the Structural Engineering Association of California.

The construction contractor would be required to obtain an NPDES construction activity storm water discharge permit (or comply with the terms and conditions of a general permit). As part of the permit, a SWPPP would be prepared and incorporated as recommended in the site-specific geotechnical report. Provisions for both temporary and permanent erosion and sediment controls must be implemented in accordance with the SWPPP designed for the site. The following principles shall be followed to the maximum extent practicable to control erosion and sedimentation from the disturbed areas of the construction site:

- Grade the site to the surrounding terrain and contour slopes in accordance with soil type and natural repose.
- Retain existing vegetation to the extent feasible.
- Time grading operations to minimize soil exposure during the rainy season.
- Minimize the length and steepness of slopes.
- Emphasize erosion controls by vegetating and mulching, or otherwise stabilizing disturbed areas.
- Direct runoff away from disturbed areas.

Mitigation Measures

Construction, design, and operational measures include the preparation of a site-specific geotechnical investigation that would include geotechnical recommendations. Cemetery structures would be designed to tolerate anticipated groundshaking from future earthquakes and comply with the seismic design criteria identified in the Uniform Building Code or in accordance with the latest design criteria of the Structural Engineering Association of California. The construction contractor would obtain an NPDES construction activity storm water discharge permit (or comply with the term, and conditions of a general permit), including the preparation

of a SWPPP with appropriate erosion and sediment control BMPs. Therefore, further mitigation measures are not required.

4.8.2 Site 4 Alternative

Impacts

Geology, Seismicity, Topography, and Soils

Construction activities and subsequent impacts to geology and soils for the Site 4 Alternative would be similar to those addressed under the Site 2 Alternative. Potential impacts from liquefaction would be controlled through the construction, design, and operation measures and would be less than significant. The topography of Site 4 would not present a major constraint to the proposed cemetery annex development and the proposed development would not result in significant impacts to the topography of the site. With implementation of BMPs, as necessary and identified in the SWPPP, and the implementation of the construction and design measures outlined above under the Site 2 Alternative, soils-related impacts would be less than significant.

Construction, Design, and Operational Measures

The construction, design, and operational measures described above for the Site 2 Alternative would also apply to the Site 4 Alternative.

Mitigation Measures

The same mitigation measures described for the Site 2 Alternative would also apply to the Site 4 Alternative.

4.8.3 No Action Alternative

Impacts

Under the No Action Alternative, a cemetery annex would not be built. Geology and soils would remain in their current condition, and there would be no impact.

Mitigation Measures

No mitigation measures are proposed.

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4.9 WATER RESOURCES

The following is a discussion of hydrology and water quality impacts associated with potential project-related drainage alterations, flooding hazards, groundwater, and water quality degradation, as well as conformance with applicable regulatory standards for the construction and operation of a national veterans cemetery on MCAS Miramar.

4.9.1 Site 2 Alternative (Preferred Alternative)

Impacts

Surface Water

The proposed cemetery annex would increase the area covered by impervious surfaces, thereby increasing the amount of runoff. Site 2 is currently undeveloped; therefore, development of the proposed project with streets, parking areas, sidewalks, and other impervious surfaces would increase runoff volumes from the proposed site. Improvements to the current drainage system would be addressed to accommodate any increase in runoff. On-site, storm water conveyance systems would be designed so that no changes in flow velocity would occur to the existing off-site canyons. Sedimentation basins could be incorporated into design plans to filter out sediment and pollutants accumulated in runoff. Upon completion of final site plans, a hydrological study would be prepared to determine the proper design of the storm water conveyance systems.

Contaminated runoff from developed sites has been identified as the primary source of pollution in urban areas. Typical pollutants found in urban runoff include air pollution residues from auto emissions; oil, grease, and other automotive fluids; metals from tire and brake wearing; chemicals found in fertilizers and pesticides; litter; animal waste; and household detergents. These pollutants are washed from street surfaces into the conveyance system by rain events. The quality of runoff is particularly degraded after a long period of no rainfall where pollutants continue to build up on surfaces and are then conveyed by the “first flush” of rainfall.

Development of the Site 2 Alternative would result in an increase in urban runoff. An NPDES construction activity storm water discharge permit would be prepared and submitted to the State Water Resources Control Board (SWRCB) by the VA for any construction that disturbs an area greater than 1 acre (0.4 hectare). A SWPPP would be prepared, including BMPs to reduce the potential for water quality degradation. Design measures would include the vegetation of permeable surfaces to attenuate soil loading and vegetation of swales and drainage channels to

provide for natural filtration of pollutants. Use of fertilizers and pesticides would be kept to a minimum, and irrigation controls would be regulated. Site waste would be strictly controlled with solid waste containers provided throughout the site during construction and operation of the proposed cemetery annex. Vehicle maintenance would not be allowed on-site at any time during construction or operation in an attempt to limit the amount of pollutants in urban runoff. A detailed hydrologic study would be conducted upon completion of final site plans to determine maximum storm flows and design proper storm water conveyance systems. Implementation of these water quality controls would eliminate both direct and indirect impacts to surface water resources. All drainage and water quality improvements would occur within the development footprint.

Groundwater

Groundwater within the Miramar HA, which underlies Site 2, has been designated by the RWQCB (1994) as having no beneficial uses. Contamination and depletion of groundwater as a result of construction or operational activities would not occur, as little groundwater occurs beneath the project area. The Proposed Action would not require the withdrawal of groundwater from any local or regional aquifer. In addition, implementation of standard construction measures discussed in this section would protect the quality of storm water runoff, thereby protecting the quality of groundwater.

Floodplains

The proposed development at Site 2 would be located above the 100-year surface water elevations, as mapped in Figure 3.9-2. There would be no floodplain encroachment. There is no floodplain risk and no impacts on natural and beneficial floodplain values associated with this project.

Construction, Design, and Operational Measures

A variety of construction measures and design and operational features would be incorporated into the Proposed Action to minimize hydrology and water quality effects of the Site 2 Alternative and the Site 4 Alternative.

Prior to issuance of a grading permit for any phase or unit of development, an NOI shall be submitted to the SWRCB by the VA, and a SWPPP shall be developed and implemented on-site

in compliance with the California General Construction Activity Storm Water Permit of the NPDES. The SWPPP shall include, but shall not be limited to, the following:

- A site description addressing the elements and characteristics specific to the site;
- Descriptions of BMPs for erosion and sediment controls;
- BMPs for construction waste handling and disposal;
- Implementation of approved local plans;
- Proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and
- Non-storm water management.

Although no long-term impacts to water quality are anticipated, the Proposed Action would implement various BMPs to ensure that long-term water quality is protected during operation, in accordance with NPDES permit requirements. Post-construction BMPs for this project would consist of:

- Permanent grease/oil traps or other filtration systems (e.g., catch basin hydrocarbon filtration) at all storm drain inlets;
- Nonstructural, post-construction programs (i.e., routine procedures or practices) to reduce the amount of pollutants available for transport in the typical rainfall/runoff process such as a material use control program including proper storage and disposal practices for potential pollutants (e.g., motor oils and antifreeze); prohibiting storage of uncovered hazardous substances in outdoor areas; prohibiting the use of pesticides and herbicides listed by the USEPA; and spill prevention/response and shipping/receiving practices; and
- A monitoring program involving the following inspection and maintenance procedures for all post-construction storm water pollution control measures to ensure that they continue to function properly;
- If utilized on-site, permanent detention basins shall be cleaned when filled to 10 percent of their capacity;

- Drainage inlet filters shall be inspected and maintained at a frequency appropriate to the type of filter system used;
- Landscaping sprinkler systems shall be maintained to prevent excess runoff due to leaking or broken sprinkler heads;
- Drainage facilities shall be routinely inspected and repaired as needed; and
- Records shall be kept of all control measure implementation, inspection, and maintenance.

The following design measures would be incorporated as part of the Proposed Action:

- All hazardous materials used during construction and operation would be stored in appropriately designed storage areas to prevent leaks or spills.
- Permeable surface areas would be vegetated with both native and drought-tolerant plant species to attenuate soil loading.
- Swales and drainage channels would be vegetated to provide for natural filtration of pollutants.
- Use of fertilizers and pesticides for site landscaping would be kept to a minimum and would be considered a “last resort” after pruning, selective replacement, and strict water control.
- Site waste receptacles would be emptied at least weekly and when containers are full. Site litter would be strictly controlled and both recycling and trash receptacles would be provided throughout the project area.
- Upon finalization of a site plan, a detailed hydrological study would be prepared to determine maximum storm flows. A storm drainage system would be designed to handle maximum flows and incorporated into the final site plan.

Mitigation Measures

No mitigation measures would be necessary since no significant impacts were identified. The construction, design, and operational measures would be implemented as outlined above.

4.9.2 Site 4 Alternative

Impacts

Surface Water

Surface water impacts associated with construction and operation of the Site 4 Alternative would be similar to those identified for the Site 2 Alternative. Implementation of construction, design, and operational measures discussed previously would be included in the development at Site 4.

Groundwater

Impacts to groundwater at Site 4 are not expected to occur due to the depth of the groundwater table in this area. The proposed cemetery annex would not require the withdrawal of groundwater from any local or regional aquifer. With design measures implemented to remove pollutants from storm water runoff, impacts would not occur through groundwater recharge.

Floodplains

Similar to development of the Site 2 Alternative, the proposed development of the Site 4 Alternative would be located above the 100-year surface water elevations, as mapped in Figure 3.9-2. There would be no floodplain encroachment; therefore, there is no floodplain risk and no impacts on natural and beneficial floodplain values associated with this project.

Construction, Design, and Operational Measures

Development of Site 4 would include several construction measures that would be implemented during construction of the Site 4 Alternative. In addition, design and operational features would be incorporated into the proposed project.

Similar with the development of Site 2, prior to issuance of a grading permit for any phase or unit of development, an NOI shall be submitted to the SWRCB by the VA and a SWPPP shall be developed and implemented on-site in compliance with the California General Construction Activity Storm Water Permit of the NPDES. The SWPPP shall include, but shall not be limited to, the following:

- A site description addressing the elements and characteristics specific to the site;

- Descriptions of BMPs for erosion and sediment controls;
- BMPs for construction waste handling and disposal;
- Implementation of approved local plans;
- Proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and
- Non-storm water management.

Recommended BMPs for the construction phase include proper stockpiling and disposal of demolition debris, concrete, and soil; protecting existing storm drain inlets; stabilizing disturbed areas; erosion controls; proper management of construction materials; waste management; aggressive litter control; and sediment controls.

Although no long-term impacts to water quality are anticipated, the proposed project would implement various BMPs to ensure that long-term water quality is protected during operation, in accordance with NPDES permit requirements. Post-construction BMPs for this project would consist of:

- Permanent grease/oil traps or other filtration systems (e.g., catch basin hydrocarbon filtration) at all storm drain inlets;
- Nonstructural, post-construction programs (i.e., routine procedures or practices) to reduce the amount of pollutants available for transport in the typical rainfall/runoff process such as a material use control program including proper storage and disposal practices for potential pollutants (e.g., motor oils and antifreeze); prohibiting storage of uncovered hazardous substances in outdoor areas; prohibiting the use of pesticides and herbicides listed by the USEPA; and spill prevention/response and shipping/receiving practices; and
- A monitoring program involving the following inspection and maintenance procedures for all post-construction storm water pollution control measures to ensure that they continue to function properly;
- If utilized on-site, permanent detention basins shall be cleaned when filled to 10 percent of their capacity;

- Drainage inlet filters shall be inspected and maintained at a frequency appropriate to the type of filter system used;
- Landscaping sprinkler systems shall be maintained to prevent excess runoff due to leaking or broken sprinkler heads;
- Drainage facilities shall be routinely inspected and repaired as needed; and
- Records shall be kept of all control measure implementation, inspection, and maintenance.

Similar with the design measures described for the Site 2 Alternative, the following design measures would be incorporated as part of the Proposed Action:

- All hazardous materials used during construction and operation would be stored in appropriately designed storage areas to prevent leaks or spills.
- Permeable surface areas would be vegetated with both native and drought-tolerant plant species to attenuate soil loading.
- Swales and drainage channels would be vegetated to provide for natural filtration of pollutants.
- Use of fertilizers and pesticides for site landscaping would be kept to a minimum and would be considered a “last resort” after pruning, selective replacement, and strict water control.
- Site waste receptacles would be emptied at least weekly and when containers are full. Site litter would be strictly controlled and both recycling and trash receptacles would be provided throughout the project area.
- Upon finalization of a site plan, a detailed hydrological study would be prepared to determine maximum storm flows. A storm drainage system would be designed to handle maximum flows and incorporated into the final site plan.

Mitigation Measures

No mitigation measures would be necessary since the construction, design, and operational measures discussed would reduce pollutants discharging off-site and thereby avoid significant impacts.

4.9.3 No Action Alternative

Impacts

Under the No Action Alternative, a national veterans cemetery would not be developed and existing conditions would remain unchanged. This alternative would eliminate all potential hydrology and water quality effects associated with project construction and operation.

Mitigation Measures

Implementation of the No Action Alternative would not result in any impacts; therefore, no mitigation would be necessary.

4.10 PUBLIC HEALTH AND SAFETY

Impacts to public health and safety could potentially occur through exposure to munitions or explosives, electromagnetic radiation hazards, APZs, small arms operational ranges, or hazardous materials that are present on MCAS Miramar.

Impacts on public safety would be considered significant if the Proposed Action exposed occupants or other persons to Surface Danger Zones (SDZs) associated with active ranges, or was inconsistent with any land use restrictions. Significant impacts associated with electromagnetic radiation would occur if occupants or other persons would be exposed to radiation in excess of scientifically accepted safe levels. The significance of impacts associated with hazardous wastes and materials is based on a substance's toxicity; transportation and storage risk; method of disposal; and numerous federal, state, and local laws regulate the storage, disposal, and transportation of hazardous materials and wastes. Impacts associated with the storage, use, transportation, or disposal of hazardous materials and wastes would be considered significant if any of these uses caused an increase in human health risks or environmental exposure.

4.10.1 Site 2 Alternative (Preferred Alternative)

Impacts

Munitions and Explosives of Concern

As discussed in Section 3.10.1, no portions of Site 2 are within artillery ranges or impact areas identified on MCAS Miramar. Therefore, no significant impacts associated with munitions and explosives of concern have been identified for Site 2.

Electromagnetic Radiation Hazards, Explosive Safety Quantity Distance Arcs, and Accident Potential Zones

As discussed in Section 3.10.1, Site 2 does not contain electromagnetic radiation hazards or ESQD arcs. Therefore, no significant electromagnetic radiation or explosive impacts would occur with implementation of the Site 2 Alternative.

Portions of Site 2 are located within APZs I and II, as well as within a height restriction area (Figure 3.10-2). Cemeteries are considered a compatible land use within APZs I and II. As part

of the development of Site 2, two Committal Service Shelters and a Flag Assembly Area are proposed. The Committal Service Shelter area would provide for away-from-gravesite interment services. These services would be held in visually isolated sheltered areas for privacy. The shelters would be covered structures that would be open or partially enclosed on the sides and would provide limited protection from wind, rain, and sun. They are not considered chapels as they would not be fully enclosed structures. Each shelter would accommodate one memorial service at a time. The Flag Assembly Area, which includes a flagpole, is a turf area for the assembly of small gatherings. The heights of the flag pole and the carillon tower would not interfere with the military operations and established flight patterns. A TERPS analysis would be conducted by NCA and coordinated with MCAS Miramar Air Operations during project design.

As shown in Figure 3.10-2, the Committal Service Shelters and the Flag Assembly Area are located outside the APZ by project design. Therefore, development of the Site 2 Alternative would be consistent with guidelines set forth in the AICUZ report. No significant public health and safety impacts related to APZs would occur.

Small Arms Operational Ranges

The Site 2 Alternative is not located within the SDZ for the pistol range complex or the new pistol and rifle range. Therefore, no impacts have been identified within these operational ranges.

Hazardous Materials

No hazardous materials have been used within the Site 2 footprint, and no hazardous waste is known to affect the site. The use of hazardous materials during construction of the cemetery annex would be limited and would be managed in strict accordance with all applicable regulations. Therefore, no hazardous wastes, substances, or materials impacts would result from implementation of the Site 2 Alternative.

Operations of the proposed cemetery annex could include use of solvent-based parts cleaner for the vehicle/equipment maintenance shop. The solvents would be stored, used, and disposed of in accordance with local, state, and federal hazardous waste regulations. VA is transitioning from solvent-based parts cleaner to the non-hazardous water or citrus-based parts cleaners. It is anticipated that the non-hazardous water or citrus-based parts cleaners would be used predominantly by the operations phase of this action.

Mitigation Measures

No munitions and explosives of concern, electromagnetic radiation hazards, ESQD arcs, small arms operational ranges, APZs, and hazardous wastes substances or materials impacts would result from implementation of the Site 2 Alternative, and no mitigation measures are proposed.

4.10.2 Site 4 Alternative

Impacts

Munitions and Explosives of Concern

As discussed in Section 3.10.1, portions of Site 4 have been identified as being part of the historical California Post Camp Kearny. While Camp Kearny has been identified as an artillery camp, no artillery ranges or impact areas have been identified within Site 4. In addition, major portions of Site 4 have been previously disturbed as part of construction of the three surrounding freeways. Therefore, no significant impacts associated with munitions and explosives of concern have been identified for Site 4.

Electromagnetic Radiation Hazards, Explosive Safety Quantity Distance Arcs, and Accident Potential Zones

As discussed in Section 3.10.1, Site 4 does not contain electromagnetic radiation hazards or ESQD arcs. Therefore, no significant electromagnetic radiation or explosive impacts would occur with implementation of the Site 4 Alternative.

Portions of the Site 4 Alternative are located within APZ I and within a height restriction area (Figure 3.10-4). As with the Site 2 Alternative, the Site 4 Alternative conceptual design footprint proposes an away-from-gravesite interment service area. Based on the conceptual design footprint, the Committal Service Area and Flag Assembly Area within the Site 4 Alternative would be located within APZ I. Structures within the Committal Service Area would be temporary and would consist of covered Committal Service Shelters with fabric canopies or tents that would be removed after use. As stated above, cemeteries are considered a compatible land use within APZ I. The AICUZ guidelines recommend that land uses consisting of commercial, services, or industrial buildings or structures be limited to 25 occupants per acre in APZ I and that outside events should normally be limited to assemblies of not more than 25 people per acre

in APZ I. Gatherings of over 25 people per acre within APZ I would not be compatible with the AICUZ report. Therefore, a significant impact would occur.

Small Arms Operational Ranges

The Site 4 Alternative is not located within the SDZ for the pistol range complex or the new pistol and rifle range. Therefore, no impacts have been identified with these operational ranges.

Hazardous Materials

No hazardous materials have been used within the Site 4 footprint, and no hazardous waste is known to affect the site. The use of hazardous materials during construction of the cemetery annex would be limited and would be managed by strict accordance with applicable regulations. The use of hazardous materials, such as solvent-based parts cleaners, during cemetery operations would be the same as for the Site 2 Alternative. Therefore, no significant hazardous materials impacts would result from implementation of the Site 4 Alternative.

Mitigation Measures

No munitions and explosives of concern, electromagnetic radiation hazards, ESQD arcs, small arms operational ranges, and hazardous wastes substances or materials impacts would result from implementation of the Site 4 Alternative, and no mitigation is proposed.

Significant impacts to public health and safety could only be mitigated by eliminating gatherings of more than 25 people or by holding these gatherings outside the APZ. This would include off-site areas or other facilities within MCAS Miramar.

4.10.3 No Action Alternative

Impacts

The proposed cemetery annex would not be constructed and no public health and safety impacts would occur.

Mitigation Measures

No mitigation measures are proposed.

4.11 TRAFFIC AND CIRCULATION

This section summarizes the projected traffic impacts that result from implementation of the Proposed Action. A detailed traffic analysis was prepared by Kimley-Horn and Associates and is included in Appendix B.

A total of five scenarios were analyzed as part of this analysis:

1. The existing traffic conditions in 2005 as described in Section 3.11.
2. The near-term conditions (2010) represent the traffic conditions of the near-term street network and include traffic volumes from other approved/pending projects in the study area projected for 2010.
3. The near-term plus project conditions (2010) represent the near-term traffic conditions with the addition of the Proposed Action.
4. Horizon year baseline conditions (2030) represent the traffic conditions of the street network assumed to be in place under build-out conditions in 2030.
5. Horizon year plus project conditions (2030) represent the build-out traffic conditions with the addition of the Proposed Action.

Forecast Traffic Volumes

The near-term ADT volumes for the roadway segments and freeways within the study area were extracted from SANDAG's Series 10 Regional Model for the year 2010. The horizon year traffic volumes for the roadway segments in the study area were obtained from SANDAG's Series 10 Select Zone Assignment for the year 2030.

To estimate the near-term and horizon year turning movement volumes at the study intersections, the existing turning movements at each respective study intersection were factored up based on the projected ADT volumes along each approach.

Trip Generation

Trip generation rates published by the Institute of Traffic Engineers (ITE) in their Seventh Edition *Trip Generation Manual* were applied to the proposed Fort Rosecrans National Cemetery

Annex. The opening day for the project would be in the year 2008. For traffic analysis purposes, it was assumed that by the year 2010, 25 percent of the proposed project site would be developed. This assumption is conservative since the project site is anticipated to be fully developed by the year 2050; therefore, based on a linear growth, the actual development of the project site by the year 2010 would be considerably less than 25 percent. In addition, it was assumed that the proposed project site would be fully developed by the year 2030. This assumption is also conservative since the project site is anticipated to be fully developed by the year 2050 instead of the year 2030.

4.11.1 Site 2 Alternative (Preferred Alternative)

Impacts

Table 4.11-1 shows the total trip generation for the Proposed Action. As shown in the table, under near-term conditions and with the proposed project being constructed on Site 2, the Proposed Action would be estimated to generate a total of 253 ADT including 9 (6 in, 3 out) AM peak hour trips and 45 (15 in, 30 out) PM peak hour trips. For the horizon year scenario and with the proposed project being constructed on Site 2, the project would be estimated to generate a total of 1,012 ADT including 36 (25 in, 11 out) AM peak hour trips and 180 (59 in, 121 out) PM peak hour trips.

Near-Term Conditions and Near-Term Plus Project Conditions

This section provides a description of the near-term conditions, both without and with the addition of the Fort Rosecrans National Cemetery Annex project traffic. Under the near-term scenario, no major infrastructure improvement projects are expected to be completed in the vicinity of the project site with the exception of the Proposed Action access driveways. With the development of Site 2, the project access would occur from Nobel Drive.

Intersection Analysis

Table 4.11-2 displays the LOS analysis results for the study intersections under the near-term conditions and near-term plus project conditions for Site 2. As shown in the table, within the Site 2 study area, all study intersections would operate at LOS C or better except for the following intersection:

- Miramar Road/Eastgate Mall (LOS F – PM peak hour)

**Table 4.11-1
Trip Generation Summary**

	Land Use as listed in ITE	Acres	Trip Rate (a)	Daily Trips	AM Peak Hour				PM Peak Hour			
					% of ADT (a)	In	Out	Total	% of ADT (a)	In	Out	Total
NEAR TERM (YEAR 2010)(b)												
<i>Proposed</i>												
Site 2	Cemetery	53.5	4.73 / Acre(s)	253	4%	6	3	9	18%	15	30	45
Site 4	Cemetery	22.5	4.73 / Acre(s)	106	4%	3	1	4	18%	6	13	19
HORIZON YEAR (YEAR 2030)(c)												
<i>Proposed</i>												
Site 2	Cemetery	214.0	4.73 / Acre(s)	1,012	4%	25	11	36	18%	59	121	180
Site 4	Cemetery	90.0	4.73 / Acre(s)	426	4%	11	4	15	18%	25	51	76

Note:

- (a) Trip rates references from ITE Trip Generation, 7th Edition.
- (b) The opening day for the project would be in the year 2008. For traffic analysis purposes, it was assumed that by the year 2010, 25% of the proposed project site would be developed. This assumption is conservative since the project site is anticipated to be fully developed by the year 2050 instead of the year 2030.
- (c) For analysis purposes only, it was assumed that the proposed project site would be fully developed by the year 2030. This assumption is conservative since the project site is anticipated to be fully developed by the year 2050 instead of the year 2030.

**Table 4.11-2
Near-Term Conditions, Peak-Hour Intersection Level of Service Summary**

Intersection	Peak Hour	Near-Term Conditions		Near-Term Plus Project		Change in Delay	Significant Impact?	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)			
SITE 2								
1	Nobel Dr. & I-805 SB On-Ramp	AM	3.3	A	3.3	A	0.0	--
		PM	6.0	A	6.0	A	0.0	--
2	Nobel Dr. & I-805 NB Off-Ramp	AM	13.0	B	13.1	B	0.1	--
		PM	18.0	B	18.1	B	0.1	--
3	Miramar Rd. & Nobel Dr.	AM	51.2	D	51.7	D	0.5	--
		PM	15.1	B	15.4	B	0.3	--
4	Miramar Rd. & Eastgate Mall	AM	16.2	B	17.6	B	1.4	--
		PM	101.7	F	102.4	F	0.7	--
5	Nobel Dr. & Site 2 Access	AM	n/a (c)		6.3	A	6.3	--
		PM	n/a (c)		5.3	A	5.3	--
SITE 4								
6	SR 52 EB Off-Ramp & Kearny Villa Rd.	AM	24.4	C	24.5	C	0.1	--
		PM	50.8	D	51.4	D	0.6	--
7	SR 52 WB Ramps & Kearny Villa Rd.	AM	ECL	F	ECL	F	-	YES
		PM	ECL	F	ECL	F	-	YES
8	SR 163 NB Off-Ramp & Kearny Villa Rd.	AM	17.3	B	17.3	B	0.0	--
		PM	10.9	B	10.9	B	0.0	--
9	SR 163 SB Ramps & Kearny Villa Rd.	AM	45.2	E	45.6	E	0.4	--
		PM	35.8	E	36.7	E	0.9	--
10	Site 4 Access & Kearny Villa Rd.	AM	n/a (c)		1.6	A	1.6	--
		PM	n/a (c)		2.7	A	2.7	--

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

NB = northbound SB = southbound WB = westbound EB = eastbound

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 6.0.

(c) Intersections 5 and 10 are the main access to the projects and would be constructed as project features.

Per the City of San Diego Traffic Impact Study Manual, an intersection delay of more than 2 seconds at LOS E or F is considered a significant impact (City of San Diego 1998). Table 4.11-2 shows that the change in traffic delay due to the additional Site 2 Alternative traffic would be 0.7 seconds and would not exceed the significance threshold of 2 seconds. As a result, all intersections in the Site 2 study area would not have a significant impact with the addition of the Site 2 Alternative traffic.

Roadway Segment Analysis

Table 4.11-3 displays the roadway segments analysis under the near-term baseline and near-term plus project conditions for Site 2. As shown in the table, all roadway segments in the Site 2 study area would function at LOS C or better except for the following roadway segments:

- Miramar Road between Nobel Drive and Eastgate Mall (LOS F without and with project)
- Miramar Road between Eastgate Mall and Miramar Mall (LOS F without and with project)
- Eastgate Mall north of Miramar Road (LOS F without and with project)

Per the City of San Diego Traffic Impact Study Manual, a roadway segment that is forecasted to operate at LOS E or F with an increase in volume to capacity (v/c) ratio of greater than 0.02 is considered a significant impact (City of San Diego 1998). Although the roadway segments listed above would function at LOS F, the increase in the v/c ratio would not exceed the significance threshold of 0.02. As a result, all roadway segments in the Site 2 study area would not be considered to have a significant impact with the addition of Site 2 Alternative traffic.

Freeway Segment Analysis

Table 4.11-4 displays the freeway segment analysis under the near-term conditions and near-term plus project conditions for Site 2. As shown in the table, all freeway segments within the Site 2 study area would operate at LOS F0 or worse without and with the addition of the Site 2 Alternative traffic.

Per the City of San Diego Traffic Impact Study Manual, a freeway segment that is forecasted to operate at LOS E or F with an increase in the v/c ratio of greater than 0.01 at LOS E or F is considered a significant impact (City of San Diego 1998). Although all freeway segments would function at LOS F0 (considerable delays of 0 to 1 hour) or worse, the increase in the v/c ratio would not exceed the significance threshold. As a result, all freeway segments in the Site 2 study area would not be considered to have a significant impact with the addition of Site 2 Alternative traffic.

**Table 4.11-3
Near-Term Conditions, Roadway Segment Level of Service Summary**

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	CAPACITY	Near-Term Condition			Near-Term Plus Project			Change in ADT	Change in V/C	Significant Impact?
			ADT	V/C RATIO (a)	LOS	ADT	V/C RATIO (a)	LOS			
SITE 2											
Miramar Rd.											
I-805 NB Ramps to Nobel Dr	6 Lanes Prime Arterial	60,000	36,000	0.60	C	36,061	0.60	C	58	0.00	--
Nobel Dr. to Eastgate Mall	6 Lanes Prime Arterial	60,000	79,304	1.32	F	79,408	1.32	F	100	0.00	--
Eastgate Mall to Miramar Mall	6 Lanes Prime Arterial	60,000	78,000	1.30	F	78,076	1.30	F	73	0.00	--
Nobel Dr.											
Miramar Rd. to Site 2 Access	6 Lanes Major Arterial	50,000	32,000	0.64	C	32,164	0.64	C	158	0.00	--
Site 2 Access to I-805 NB Off-Ramp	6 Lanes Major Arterial	50,000	32,000	0.64	C	32,089	0.64	C	85	0.00	--
Eastgate Mall											
North of Miramar Rd.	2 Lanes Collector (commercial-industrial fronting)	8,000	15,122	1.89	F	15,150	1.89	F	27	0.00	--
SITE 4											
Kearny Villa Rd.											
Harris Plant Rd. to SR 163 SB Ramps	4 Lanes Major Arterial	40,000	25,000	0.63	C	25,005	0.63	C	5	0.00	--
SR 163 NB Ramps to Proposed Project Dwy	4 Lanes Collector	30,000	17,000	0.57	C	17,044	0.57	C	44	0.00	--
Proposed Project Dwy to SR 52 WB Ramps	4 Lanes Collector	30,000	17,000	0.57	C	17,063	0.57	C	63	0.00	--
SR 52 EB Ramps to Ruffin Rd.	4 Lanes Major Arterial	40,000	23,000	0.58	C	23,024	0.58	C	24	0.00	--

Notes:

Bold values indicate roadway segments operating at LOS E or F.

NB = northbound SB = southbound WB = westbound EB = eastbound

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

**Table 4.11-4
Near-Term Conditions, Freeway Segment Analysis Summary**

Freeway Segment	Direction	Number of Lanes	Capacity (a)	Near-Term Condition				Near-Term Plus Project				Change in V/C Ratio	Significant Impact?
				ADT (b)	Peak Hour Volume	V/C Ratio	LOS	ADT (b)	Peak Hour Volume	V/C Ratio	LOS		
AM PEAK													
Site 2													
I-805													
Governor Dr. to Nobel Dr.	NB	4 M	8,000	243,000	11,432	1.429	F2	243,018	11,433	1.429	F2	0.000	--
	SB	4 M	8,000										
Nobel Dr. to Miramar Rd.	NB	4 M	8,000	207,000	10,701	1.338	F1	207,000	10,701	1.338	F1	0.000	--
	SB	4 M	8,000										
Miramar Rd. to Mira Mesa Blvd.	NB	4 M	8,000	208,000	10,995	1.374	F2	208,053	10,998	1.375	F2	0.000	--
	SB	4 M	8,000										
Site 4													
I-15													
SR 163 to Miramar Way	NB	4 M + 1 ML	9,600	358,000	15,238	1.587	F2	358,019	15,239	1.587	F2	0.000	--
	SB	4 M + 1 ML	9,600										
SR 52													
Convoy St. to SR 163	WB	3 M	6,000	138,000	6,808	1.135	F0	138,019	6,809	1.135	F0	0.000	--
	EB	3 M	6,000										
SR 163 to Kearny Villa Rd.	WB	3 M	6,000	123,000	8,791	1.465	F2	123,000	8,791	1.465	F2	0.000	--
	EB	3 M	6,000										
Kearny Villa Rd. to I-15	WB	3 M	6,000	77,000	6,454	1.076	F0	77,019	6,456	1.076	F0	0.000	--
	EB	3 M	6,000										
I-15 to Santo Rd.	WB	3 M	6,000	114,000	6,378	1.063	F0	114,019	6,379	1.063	F0	0.000	--
	EB	3 M	6,000										
SR 163													
I-15 to Kearny Villa Rd.	NB	4 M	8,000	174,000	11,494	1.437	F2	174,019	11,496	1.437	F2	0.000	--
	SB	4 M + 1 A	9,200										
Kearny Villa Rd. to SR 52	NB	4 M	8,000	184,000	11,470	1.434	F2	184,019	11,471	1.434	F2	0.000	--
	SB	5 M	10,000										

4.0 Environmental Consequences

Freeway Segment	Direction	Number of Lanes	Capacity (a)	Near-Term Condition				Near-Term Plus Project				Change in V/C Ratio	Significant Impact?
				ADT (b)	Peak Hour Volume	V/C Ratio	LOS	ADT (b)	Peak Hour Volume	V/C Ratio	LOS		
PM PEAK													
Site 2													
I-805													
Governor Dr. to Nobel Dr.	NB	4 M	8,000	243,000	10,511	1.314	F1	243,018	10,529	1.316	F1	0.002	--
	SB	4 M	8,000										
Nobel Dr. to Miramar Rd.	NB	4 M	8,000	207,000	9,839	1.230	F0	207,000	9,839	1.230	F0		--
	SB	4 M	8,000										
Miramar Rd. to Mira Mesa Blvd.	NB	4 M	8,000	208,000	10,109	1.264	F1	208,053	10,112	1.264	F1	0.000	--
	SB	4 M	8,000										
Site 4													
I-15													
SR 163 to Miramar Way	NB	4 M + 1 ML	9,600	358,000	15,554	1.620	F2	358,019	15,555	1.620	F2	0.000	--
	SB	4 M + 1 ML	9,600										
Convoy St. to SR 163	WB	3 M	6,000	138,000	6,195	1.033	F0	138,019	6,196	1.033	F0	0.000	--
	EB	3 M	6,000										
SR 163 to Kearny Villa Rd.	WB	3 M	6,000	123,000	8,471	1.412	F2	123,000	8,471	1.412	F2		--
	EB	3 M	6,000										
Kearny Villa Rd. to I-15	WB	3 M	6,000	77,000	7,592	1.265	F1	77,019	7,594	1.266	F1	0.000	--
	EB	3 M	6,000										
I-15 to Santo Rd.	WB	3 M	6,000	114,000	8,546	1.424	F2	114,019	8,548	1.425	F2	0.000	--
	EB	3 M	6,000										
SR 163													
I-15 to Kearny Villa Rd.	NB	4 M	8,000	174,000	8,900	0.967	E	174,019	8,901	0.967	E	0.000	--
	SB	4 M + 1 A	9,200										
Kearny Villa Rd. to SR 52	NB	4 M	8,000	184,000	8,881	0.888	D	184,019	8,882	0.888	D	0.000	--
	SB	5 M	10,000										

Notes:

Bold values indicate freeway segments operating at LOS E or F.

NB = northbound SB = southbound WB = westbound EB = eastbound

(a) The capacity is calculated as 2,000 ADT per Mainline, 1,600 ADT per HOV lane, 1,600 ADT per ML and 1,200 ADT per auxiliary lane (M: Mainline, A: Aux., HOV: High Occupancy Vehicle, ML: Managed Lanes Ex. 4M+2A=4 Mainline + 2 Aux).

(b) ADT volumes provided by SANDAG.

Horizon Year Conditions and Horizon Year Plus the Project Conditions

This section provides a description of the horizon year conditions both without and with the addition of the Fort Rosecrans National Cemetery Annex project traffic.

Road Network

Under the horizon year scenario or by the year 2030, all roadways in the study area are expected to be built to their ultimate classification. No major infrastructure improvement projects are expected to be completed in the vicinity of the project sites. Under the horizon year scenario, the Proposed Action's near-term improvements were assumed to be in place for the horizon year baseline conditions.

Traffic Volumes

The estimated traffic generated for the Site 2 Alternative was added to the horizon year (2030) or build-out baseline condition trips to estimate the horizon year plus project conditions.

Intersection Analysis

Table 4.11-5 displays the LOS analysis results for the study intersections under the horizon year baseline and horizon year plus project conditions for the Site 2 Alternative. As shown in the table, within the Site 2 study area, all study intersections would operate at LOS C or better except for the following intersections:

- Miramar Road/Nobel Drive (LOS E - AM peak hour)
- Miramar Road/Eastgate Mall (LOS F – PM peak hour)

Table 4.11-5 shows that the change in traffic delay due to the additional Site 2 Alternative traffic would be 1.0 second for the Miramar Road/Nobel Drive intersection and 1.8 seconds for the Miramar Road/Eastgate Mall intersection. Neither of these intersections would exceed the significance threshold of 2 seconds. As a result, all intersections in the Site 2 study area would not have a significant impact with the addition of the Site 2 Alternative traffic.

**Table 4.11-5
Horizon Year Conditions, Peak Hour Intersection Level of Service Summary**

Intersection	Peak Hour	Horizon Year Conditions		Horizon Year Plus Project		Change in Delay	Significant Impacts?	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)			
SITE 2								
1	Nobel Dr. & I-805 SB On-Ramp	AM	3.5	A	3.5	A	0.0	--
		PM	6.6	A	6.8	A	0.2	--
2	Nobel Dr. & I-805 NB Off-Ramp	AM	14.8	B	15.0	B	0.2	--
		PM	21.5	C	22.2	C	0.7	--
3	Miramar Rd. & Nobel Dr.	AM	73.2	E	74.2	E	1.0	--
		PM	18.0	B	20.9	C	2.9	--
4	Miramar Rd. & Eastgate Mall	AM	24.0	C	25.5	C	1.5	--
		PM	150.8	F	152.6	F	1.8	--
5	Nobel Dr. & Site 2 Access	AM	n/a (c)		7.0	A	7.0	--
		PM	n/a (c)		6.5	A	6.5	--
SITE 4								
6	SR 52 EB Off-Ramp & Kearny Villa Rd.	AM	56.4	E	56.5	E	0.1	--
		PM	ECL	F	ECL	F	-	YES
7	SR 52 WB Ramps & Kearny Villa Rd.	AM	23.0	C	23.1	C	0.1	--
		PM	160.6	F	162.0	F	1.4	--
8	SR 163 NB Off-Ramp & Kearny Villa Rd.	AM	39.4	D	39.5	D	0.1	--
		PM	19.8	B	19.9	B	0.1	--
9	SR 163 SB Ramp & Kearny Villa Rd.	AM	ECL	F	ECL	F	-	YES
		PM	130.7	F	ECL	F	-	YES
10	Site 4 Access & Kearny Villa Rd.	AM	n/a (c)		2.0	A	2.0	--
		PM	n/a (c)		5.3	A	5.3	--

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

NB = northbound SB = southbound WB = westbound EB = eastbound

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 6.0.

Roadway Segment Analysis

Table 4.11-6 displays the roadway segments analysis under the horizon year conditions and horizon year plus project conditions for the Site 2 Alternative. As shown in the table, all roadway segments in the Site 2 study area would function at LOS C or better except for the following roadway segments:

- Miramar Road between Nobel Drive and Miramar Mall (LOS F without and with project)
- Miramar Road between Eastgate Mall and Miramar Mall (LOS F without and with project)
- Eastgate Mall north of Miramar Road (LOS F without and with project)

Although the roadway segments listed above would function at LOS F, the increase in the v/c ratio would not exceed the significance threshold of 0.02. As a result, all roadway segments in the Site 2 study area would not be considered to have a significant impact with the addition of the Site 2 Alternative traffic.

Freeway Segment Analysis

Table 4.11-7 displays the freeway segment analysis under the horizon year conditions and horizon year plus project conditions for the Site 2 Alternative. As shown in the table, all freeway segments within the Site 2 study area would operate at LOS F0 (considerable delays of 0 to 1 hour) or worse without and with the addition of the Site 2 Alternative traffic. Although all freeways segments would function at LOS F0 or worse, the increase in the v/c ratio would not exceed the significance threshold of 0.01. As a result, all freeway segments in the Site 2 study area would not be considered to have a significant impact with the addition of the Site 2 Alternative traffic.

Mitigation Measures

This section will address the proposed mitigation measures for the Site 2 Alternative. The mitigation measures will address the impacts for the near-term conditions and near-term plus project conditions, and the horizon year conditions and horizon year plus the project conditions.

**Table 4.11-6
Horizon Year Conditions, Roadway Segment Level of Service Summary**

Roadway Segment	Roadway Classification	Acceptable Volume	Capacity	Horizon Year Condition			Horizon Year Plus Project			Change in ADT	Change in V/C Ratio	Significant Impact?
				ADT	V/C RATIO (a)	LOS	ADT	V/C RATIO (a)	LOS			
SITE 2												
Miramar Rd.												
I-805 NB Ramps to Nobel Dr.	6 Lanes Prime Arterial	50,000	60,000	39,000	0.65	C	39,243	0.65	C	243	0.00	--
Nobel Dr. to Eastgate Mall	6 Lanes Prime Arterial	50,000	60,000	86,167	1.44	F	86,582	1.44	F	415	0.00	--
Eastgate Mall to Miramar Mall	6 Lanes Prime Arterial	50,000	60,000	85,000	1.42	F	85,304	1.42	F	304	0.00	--
Nobel Dr.												
Miramar Rd. to Site 2 Access	6 Lanes Major Arterial	40,000	50,000	34,000	0.68	C	34,658	0.69	C	658	0.01	--
Site 2 Access to I-805 NB Off-Ramp	6 Lanes Major Arterial	40,000	50,000	34,000	0.68	C	34,354	0.69	C	354	0.01	--
Eastgate Mall												
North of Miramar Rd.	2 Lanes Collector (commercial-industrial fronting)	5,000	8,000	18,000	2.25	F	18,111	2.26	F	111	0.01	--
SITE 4												
Kearny Villa Rd.												
Harris Plant Rd. to SR 163 SB Ramps	4 Lanes Major Arterial	30,000	40,000	39,000	0.98	E	39,021	0.98	E	21	0.00	--
SR 163 NB Ramps to Proposed Project Dwy.	4 Lanes Major Arterial	30,000	40,000	26,000	0.65	C	26,175	0.65	C	175	0.00	--
Proposed Project Dwy. to SR 52 WB Ramps	4 Lanes Major Arterial	30,000	40,000	26,000	0.65	C	26,251	0.66	C	251	0.01	--
SR 52 EB Ramps to Ruffin Rd.	4 Lanes Major Arterial	30,000	40,000	28,000	0.70	C	28,098	0.70	C	98	0.00	--

Notes:

Bold values indicate roadway segments operating at LOS E or F.

NB = northbound SB = southbound WB = westbound EB = eastbound

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

**Table 4.11-7
Horizon Year Conditions, Freeway Segment Analysis Summary**

Freeway Segment	Direction	Number of Lanes	Capacity (a)	Horizon Year Condition				Horizon Year Plus Project				Change in V/C Ratio	Significant Impact?
				ADT (b)	Peak Hour Volume	V/C Ratio	LOS	ADT (b)	Peak Hour Volume	V/C Ratio	LOS		
AM PEAK													
Site 2													
I-805													
Governor Dr. to Nobel Dr.	NB	4 M + 2 ML	11,200	280,000	13,173	1.176	F0	280,071	13,176	1.176	F0	0.000	--
	SB	4 M + 2 ML	11,200										
Nobel Dr. to Miramar Rd.	NB	4 M + 2 ML	11,200	242,000	12,511	1.117	F0	242,000	12,511	1.117	F0	0.000	--
	SB	4 M + 2 ML	11,200										
Miramar Rd. to Mira Mesa Blvd.	NB	4 M + 2 ML	11,200	238,000	12,581	1.123	F0	238,213	12,592	1.124	F0	0.001	--
	SB	4 M + 2 ML	11,200										
Site 4													
I-15													
SR 163 to Miramar Way	NB	4 M + 2 ML	11,200	412,000				412,077					--
	SB	4 M + 2 ML	11,200		17,537	1.566	F2		17,540	1.566	F2	0.000	--
SR 52													
Convoy St. to SR 163	WB	3 M + 1 HOV	7,600	169,000	8,338	1.097	F0	169,077	8,342	1.098	F0	0.000	--
	EB	3 M + 1 HOV	7,600										
SR 163 to Kearny Villa Rd.	WB	3 M + 1 HOV	7,600	151,000	10,793	1.420	F2	151,000	10,793	1.420	F2	0.000	--
	EB	3 M + 1 HOV	7,600										
Kearny Villa Rd. to I-15	WB	3 M + 1 HOV	7,600	107,000	8,969	1.180	F0	107,077	8,975	1.181	F0	0.001	--
	EB	3 M + 1 HOV	7,600										
I-15 to Santo Rd.	WB	3 M + 1 HOV	7,600	164,000	9,175	1.207	F0	164,077	9,179	1.208	F0	0.001	--
	EB	3 M + 1 HOV	7,600										
SR 163													
I-15 to Kearny Villa Rd.	NB	4 M	8,000	187,000	12,353	1.544	F2	187,077	12,358	1.545	F2	0.001	--
	SB	4 M + 1 A	9,200				0.000						
Kearny Villa Rd. to SR 52	NB	4 M	8,000	203,000	12,655	1.582	F2	203,077	12,659	1.582	F2	0.001	--
	SB	5 M	10,000				0.000						
PM PEAK													
Site 2													
I-805													
Governor Dr. to Nobel Dr.	NB	4 M + 2 ML	11,200	280,000				280,071					--
	SB	4 M + 2 ML	11,200		12,111	1.081	F0		12,111	1.081	F0	0.000	--
Nobel Dr. to Miramar Rd.	NB	4 M + 2 ML	11,200	242,000				242,000					--
	SB	4 M + 2 ML	11,200		11,503	1.027	F0		11,503	1.027	F0	0.000	--

4.0 Environmental Consequences

Freeway Segment	Direction	Number of Lanes	Capacity (a)	Horizon Year Condition				Horizon Year Plus Project				Change in V/C Ratio	Significant Impact?
				ADT (b)	Peak Hour Volume	V/C Ratio	LOS	ADT (b)	Peak Hour Volume	V/C Ratio	LOS		
Miramar Rd. to Mira Mesa Blvd.	NB	4 M + 2 ML	11,200	238,000	11,567	1.033	F0	238,213	11,577	1.034	F0	0.001	--
	SB	4 M + 2 ML	11,200										
Site 4													
I-15													
SR 163 to Miramar Way	NB	4 M + 2 ML	11,200	412,000	17,901	1.598	F2	412,077	17,904	1.599	F2	0.000	--
	SB	4 M + 2 ML	11,200										
SR 52													
Convoy St. to SR 163	WB	3 M + 1 HOV	7,600	169,000	7,587	0.998	E	169,077	7,590	0.999	E	0.000	--
	EB	3 M + 1 HOV	7,600										
SR 163 to Kearny Villa Rd.	WB	3 M + 1 HOV	7,600	151,000	10,400	1.368	F2	151,000	10,400	1.368	F2	0.000	--
	EB	3 M + 1 HOV	7,600										
Kearny Villa Rd. to I-15	WB	3 M + 1 HOV	7,600	107,000	10,550	1.388	F2	107,077	10,557	1.389	F2	0.001	--
	EB	3 M + 1 HOV	7,600										
I-15 to Santo Rd.	WB	3 M + 1 HOV	7,600	164,000	12,295	1.618	F2	164,077	12,300	1.618	F2	0.001	--
	EB	3 M + 1 HOV	7,600										
SR 163													
I-15 to Kearny Villa Rd.	NB	4 M	8,000	187,000	9,565	1.040	F0	187,077	9,569	1.040	F0	0.000	--
	SB	4 M + 1 A	9,200										
Kearny Villa Rd. to SR 52	NB	4 M	8,000	203,000	9,798	0.980	E	203,077	9,802	0.980	E	0.000	--
	SB	5 M	10,000										

Notes:

Bold values indicate freeway segments operating at LOS E or F.

NB = northbound SB = southbound WB = westbound EB = eastbound

(a) The capacity is calculated as 2,000 ADT per Mainline, 1,600 ADT per HOV lane, 1,600 ADT per ML and 1,200 ADT per auxiliary lane (M: Mainline, A: Aux., HOV: High Occupancy Vehicle, ML: Managed Lanes Ex. 4M+2A=4 Mainline + 2 Aux)

(b) ADT's volumes provided by SANDAG

0

Near-Term Conditions and Near-Term Plus Project Conditions

No significant traffic impacts would occur with implementation of the Site 2 Alternative. No mitigation measures are proposed.

Horizon Year Conditions and Horizon Year Plus the Project Conditions

No significant traffic impacts would occur with implementation of the Site 2 Alternative. No mitigation measures are proposed.

4.11.2 Site 4 Alternative

Impacts

Table 4.11-1 shows the total trip generation for the Site 4 Alternative. As shown in the table, under near-term conditions and with the proposed project being constructed, the Proposed Action would be estimated to generate a total of 106 ADT including 4 (3 in, 1 out) AM peak-hour trips and 19 (6 in, 13 out) PM peak-hour trips. For the horizon year scenario and with the proposed project being constructed on Site 4, the project would be estimated to generate a total of 426 ADT including 15 (11 in, 4 out) AM peak-hour trips and 76 (25 in, 51 out) PM peak-hour trips.

Near-Term Conditions and Near-Term Plus Project Conditions

This section provides a description of the near-term conditions both without and with the addition of the Fort Rosecrans National Cemetery Annex project traffic. Under the near-term scenario, no major infrastructure improvement projects are expected to be completed in the vicinity of the project site with the exception of the proposed project access driveways. With the development of the Site 4 Alternative, the project would take access from Kearny Villa Road and a new signal would also be constructed at the proposed project entrance.

Intersection Analysis

Table 4.11-2 displays the LOS analysis results for the study intersections under the near-term conditions and near-term plus project conditions for Site 4. Within the Site 4 study area, all intersections would operate at LOS D or better except for the following intersections:

- SR 52 westbound ramps/Kearny Villa Road (LOS F – AM and- PM peak hours)

- SR 163 southbound ramps/Kearny Villa Road (LOS E – AM and PM peak hours)

As shown in the table, the increase in delay due to the Site 4 Alternative traffic would be greater than 2 seconds at the SR 52 westbound ramps/Kearny Villa Road, but less than 2 seconds at the SR 163 southbound ramps/Kearny Villa Road intersection. Therefore, the Site 4 Alternative would have a significant impact at the SR 52 westbound ramps/Kearny Villa Road intersection and no significant impact at the SR 163 southbound ramps/Kearny Villa Road intersection.

Roadway Segment Analysis

Table 4.11-3 displays the roadway segments analysis under the near-term conditions and near-term plus project conditions for the Site 4 Alternative. Within the Site 4 study area, all roadway segments would function at LOS C or better without and with the addition of the Site 4 project traffic and there would be no significant impacts.

Freeway Segment Analysis

Table 4.11-4 displays the freeway segment analysis under the near-term conditions and near-term plus project conditions for the Site 4 Alternative. Within the Site 4 study area, with the exception of SR 163 between Kearny Villa Road and SR 52 during the PM peak-hour, all freeway segments would operate at LOS E or worse without and with the addition of the Site 4 Alternative traffic. However, since the increase in v/c ratio due to the Site 4 Alternative traffic along the failing freeway segments is below the significance threshold of 0.01, the Site 4 Alternative would not have a significant impact along the freeway segments within its study area.

Horizon Year Conditions and Horizon Year Plus the Project Conditions

This section provides a description of the horizon year conditions both without and with the addition of the Fort Rosecrans National Cemetery Annex project traffic.

Road Network

Under the horizon year scenario or by the year 2030, all roadways in the study area are expected to be built to their ultimate classification. No major infrastructure improvement projects are expected to be completed in the vicinity of Site 4. Under the horizon year scenario, the Site 4

Alternative near-term improvements were assumed to be in place for the horizon year baseline conditions.

Traffic Volumes

The estimated traffic for the Site 4 Alternative was added to the horizon year condition trips to estimate the horizon plus project conditions.

Intersection Analysis

Table 4.11-5 displays the LOS analysis results for the study intersections under the horizon year condition and horizon year plus project conditions for the Site 4 Alternative. As shown in the table, within the Site 4 study area, all intersections would operate at LOS D or better except for the following intersections:

- SR 52 eastbound off-ramp/Kearny Villa Road (LOS E or F – AM and- PM peak-hours)
- SR 52 westbound ramp/Kearny Villa Road (LOS F – PM peak-hour)
- SR 163 southbound ramp/Kearny Villa Road (LOS F – AM and PM peak hours)

As shown in the table, the increase in delay due to the Site 4 Alternative traffic would be greater than 2 seconds at the SR 52 northbound off-ramp/Kearny Villa Road intersection and the SR 163 southbound ramps/Kearny Villa Road intersection. Therefore, the Site 4 Alternative would have a significant cumulative impact at both of these intersections.

Roadway Segment Analysis

Table 4.11-6 displays the roadway segments analysis under the horizon year condition and horizon year plus project conditions for the Site 4 Alternative. Within the Site 4 study area, all roadway segments would function at LOS C or better without and with the addition of the Site 4 Alternative traffic except for the following roadway segment:

- Kearny Villa Road between Harris Plant Road and SR 163 southbound ramps (LOS E without and with project)

It should be noted that although the roadway segment listed above would function at LOS E, the increase in the v/c ratio due to the project traffic would not exceed the significance threshold of

0.02. As a result, all roadway segments in the Site 4 study area would not be considered to have a significant impact with the addition of Site 4 Alternative traffic.

Freeway Segment Analysis

Table 4.11-7 displays the freeway segment analysis under the horizon year condition and horizon year plus project conditions for the Site 4 Alternative. Within the Site 4 study area, all freeway segments would operate at LOS E or worse without and with the addition of the Site 4 Alternative traffic. However, since the increase in v/c ratio due to the Site 4 Alternative traffic along the failing freeway segments is below the significance threshold of 0.01, the Site 4 Alternative would not have a significant impact along the freeway segments within its study area.

Mitigation Measures

This section will address the proposed mitigation measures for the Site 4 Alternative. The mitigation measures will address the impacts for the near-term conditions and near-term plus project conditions and the horizon year conditions and horizon year plus the project conditions.

Near-Term Conditions and Near-Term Plus Project Conditions

As shown in Table 4.11-2, the Site 4 Alternative would have a significant impact at the SR 52 westbound ramps/Kearny Villa Road intersection. To mitigate the impact signalization of the intersection would be required. As shown in Table 4.11-8, with the proposed improvement, the SR 52 westbound ramps/Kearny Villa Road intersection would operate at LOS D or better during both peak periods.

Horizon Year Conditions and Horizon Year Plus the Project Conditions

As shown in Table 4.11-5, the Site 4 Alternative would have a significant cumulative impact at the SR 52 eastbound off-ramp/Kearny Villa Road intersection and at the SR 163 southbound ramps/Kearny Villa Road intersection.

To mitigate its impact at the SR 52 eastbound off-ramp/Kearny Villa Road intersection, the proposed project would be required to add a second southbound left-turn lane to Kearny Villa Road. As shown in Table 4.11-8, with the proposed improvement, the SR 52 eastbound off-ramp/Kearny Villa Road intersection would continue to operate at LOS F during the PM peak

**Table 4.11-8
Mitigated Level of Service Summary**

Intersection	Peak Hour	Before Project		After Project		After Project's Improvement		Description	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)	Delay (a)	LOS (b)		
NEAR-TERM CONDITIONS MITIGATED, PEAK HOUR INTERSECTION LEVEL OF SERVICE SUMMARY									
SITE 4									
7	SR 52 WB Ramps & Kearny Villa Rd.	AM	ECL	F	ECL	F	13.9	B	Construct traffic signal.
		PM	ECL	F	ECL	F	46.7	D	
HORIZON YEAR CONDITIONS MITIGATED, PEAK HOUR INTERSECTION LEVEL OF SERVICE SUMMARY									
SITE 4									
6	SR 52 EB Off-Ramp & Kearny Villa Rd.	AM	56.4	E	56.5	E	52.4	D	Add a second southbound left-turn lane.
		PM	ECL	F	ECL	F	137.5	F	
9	SR 163 SB Ramp & Kearny Villa Rd.	AM	ECL	F	ECL	F	14.6	B	Construct traffic signal and add second southbound right-turn lane.
		PM	130.7	F	145.0	F	6.0	A	

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

SB = southbound WB = westbound EB = eastbound

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Synchro 6.0.

period; however, the delay at the failing intersection would decrease significantly from the before project conditions. Since the failing conditions at this intersection would be considered an existing deficiency, the proposed improvement would mitigate the Site 4 Alternative significant cumulative impact and no additional mitigation is required or warranted.

To mitigate its impact at the SR 163 southbound ramps/Kearny Villa Road intersection, signalization of the intersection would be required and a second southbound right-turn lane would need to be added to Kearny Villa Road. As shown in Table 4.11-8, with these improvements the intersection of SR 163 southbound ramps/Kearny Villa Road intersection would operate at LOS B or better.

4.11.3 No Action Alternative

Impacts

Under this alternative no cemetery annex would be constructed or operated and therefore no traffic-related impacts would result.

Mitigation Measures

No traffic impacts would occur and therefore no mitigation measures are proposed.

4.12 AIR QUALITY

The impact assessment relies on specific numerical thresholds for individual air pollutant emissions. These thresholds correspond to the *de minimis* levels contained in the General Conformity Rule (see Clean Air Act Conformity, below).

Clean Air Act Conformity

Location in a Nonattainment Area

Specific geographic areas are classified under the federal CAA as either “attainment” or “nonattainment” for each pollutant, based on conformance with or violation of the NAAQS. The General Conformity Rule applies to actions that generate emissions in nonattainment or maintenance areas. MCAS Miramar is located within the SDAB, which is a federal “basic” nonattainment area for the 8-hour O₃ standard, and a maintenance area for CO. Therefore, the General Conformity Rule is applicable at the project location.

Emission of Criteria Pollutants

The General Conformity Rule requires analysis of emissions of criteria pollutants and their precursors for which an area is designated nonattainment or that is covered by a maintenance plan. Each alternative would include construction equipment and mobile sources that would emit CO, ROG, and NO_x. ROG and NO_x are the precursors of O₃. Therefore, the General Conformity Rule is applicable to the project emissions of CO, ROG, and NO_x.

De Minimis Exemptions

The USEPA has determined specific federal actions, or portions thereof, to be exempt from a formal conformity determination. Actions are exempt where the total net increase of all reasonably foreseeable direct and indirect emissions (1) would be less than specified emission rate thresholds, known as *de minimis* limits, and (2) would be less than 10 percent of the area’s annual emission budget. The *de minimis* limits applicable to the SDAB are shown in Table 4.12-1.

**Table 4.12-1
De Minimis Limits for Criteria Pollutants**

Pollutant	Emissions (tons/year)
CO	100 ¹
NO _x	100 ²
ROG	100 ²

Source: DON 2002b

¹ Attainment/maintenance area for CO.

² Basic nonattainment area for 8-hour O₃.

NEPA Analysis

A NEPA analysis differs from the General Conformity analysis in that attainment pollutant emissions are considered as well as nonattainment pollutants. Therefore, emissions of PM₁₀ and PM_{2.5}, which would not be considered in the General Conformity analysis, are included in a NEPA analysis. The reason that PM₁₀ and PM_{2.5} are not considered in the General Conformity analysis is that the SDAB is in attainment with federal standards for this pollutant and is not classified as a maintenance area for PM₁₀ and PM_{2.5}; thus, conformity analysis is not required. The *de minimis* limits shown in Table 4.12-1, used to evaluate the Proposed Action for general conformity, are appropriate guidelines for the determination of a significant impact under NEPA. The *de minimis* limits for a PM₁₀ or PM_{2.5} maintenance area are used for NEPA significance guidelines. This evaluation does not address SO₂, lead, hydrogen sulfide, or vinyl chloride. Although these pollutants are regulated by the federal or state governments, little to no emissions of these substances would be generated during construction or occupation.

Emissions Calculations – Criteria Pollutants

Methodology

Emissions were estimated by use of the URBEMIS 2002 software package, version 8.7 (CARB 2005). The emission factors and calculation methodologies contained in the URBEMIS 2002 program have been approved for use by the CARB. URBEMIS is a calculation tool designed to estimate air emissions from land use development projects based on development type and size. The model contains data that are specific for each California air basin. Data relative to the Proposed Action are based on the description in Chapter 2 of this EIS and the following assumptions:

- Construction would occur in four phases.
- Phase 1 will include all of the administrative and maintenance and unique facilities, such as flag area, memorial area, and Committal Service Shelters and Areas; the primary road; and one-fourth of the secondary roads and burial sites, including columbaria.
- Phase 1 construction would occur in 2008 and 2009.
- Burial operations, including subsequent visiting of the cemetery and burial sites, would begin during Phase 1 construction, in 2008.
- The rate of burial operations would not change over the 40-year period of operations. However, the rate of visitation may increase, as the number of occupied burial sites increases, although visitation tends to level off as the earliest burial visitors move or pass away. For purposes of emissions calculations, trip generation was assumed to increase uniformly from the opening through 2030. Trip generation volumes were taken from Table 4.11-1.
- Phases 2, 3, and 4 would each include one-fourth of the secondary roads and burial sites, including the columbaria.

Changes in plan layouts and area or other factors are anticipated to be within the accuracy of the estimating methodology. URBEMIS data sheets are included in this EIS as Appendix C.

Construction

Construction would affect air quality as a result of (1) construction equipment emissions, including both on-site equipment and trucks operating off-site for the import of fill and building materials and the export of grading spoils; (2) fugitive dust from grading and earth moving; (3) emissions from vehicles driven to/from the sites by construction workers; and (4) ROG from architectural coating and asphalt application.

The URBEMIS program considers a typical development project to have three nonoverlapping sequential phases of construction: demolition, grading, and building. No demolition would occur with the Proposed Action. The building phase includes separate elements for architectural

coatings and paving, as well as the general use of equipment for construction of structures. The URBEMIS input and output data, included in this EIS as Appendix C, list the assumptions of equipment used for the project construction, year used for calculations, and changes to default settings that were made for project-specific conditions.

This evaluation does not address SO₂, lead, Hydrogen sulfide, or vinyl chloride. Although these pollutants are regulated by the federal or state governments as shown in Table 3.12-1, little to no emissions of these substances would be generated during construction or operation of the Proposed Action.

Operations

Regional Pollutants

Following completion of the first phase of construction, emissions would be generated by the vehicles used by the visitors to the proposed cemetery annex. Operations emissions also include area source emissions, which would occur from the use of natural gas for space and hot water heating, and diesel and gasoline-driven machinery for maintenance of landscape and open space.

Operations emissions may be calculated separately for General Conformity analysis and for NEPA impact evaluation. The emissions to be considered for General Conformity are limited to those that "... the Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal Agency." For the Fort Rosecrans National Cemetery Annex project, the vehicle emissions that can be practicably controlled by the VA are those related to commuting to and from work by cemetery annex employees. For the NEPA analysis, all trips generated by the project are considered. Thus, the NEPA emissions would be greater than the General Conformity emissions. It then follows that if the NEPA emissions are less than the General Conformity thresholds, then the General Conformity emissions would also be less than the thresholds.

Operations emissions for each phase are calculated with URBEMIS for 2008, 2009, 2010, and then every five years through 2040, which corresponds to the emission factors years residents in the model. Operations emissions for intermediate years are interpolated.

Concurrent Emissions

In 2008 there would be concurrent construction and operations at the start of operations for the cemetery.

During the construction of Phase 2 of the cemetery annex, there would be a 2-year period of concurrent emissions of operations and construction. There would be similar periods of concurrent emissions during the construction of the Phase 3 and Phase 4 portions of the cemetery annex.

4.12.1 Site 2 Alternative (Preferred Alternative)

Impacts

Table 4.12-2 shows the estimated emissions that would be generated from construction of the Site 2 Alternative. Operations calculations for the Site 2 Alternative are shown in Table 4.12-3. Combined emissions are shown in Table 4.12-4.

Construction and operations emissions were combined for each year of construction to evaluate total emissions against General Conformity Rule *de minimis* limits, as shown in Table 4.12-4. During 2008 and 2009, there would be combined construction and operation emissions. From 2010 through 2017, there would be only operations emissions. In 2018 and 2019, Phase 2 construction would be combined with emissions from the operations of Phase 1. In 2020, there would be an increase in operations emissions from the maintenance of the enlarged, Phase 2 cemetery annex. This pattern would repeat in 2028-2029-2030 for Phase 3 construction and in 2038-2039-2040 for Phase 4 construction.

The period of greatest emissions for NO_x would be 2008, with combined construction and operations emissions. Maximum annual emissions of CO and PM₁₀ would occur in 2038, the first year of Phase 4 construction, while ROG emissions would peak in 2039, the second year of Phase 4 construction. All annual emissions would be less than 20 percent of the applicable *de minimis* thresholds.

**Table 4.12-2
Construction Emissions, Site 2 Alternative**

Phase	Year	Pollutant emissions – tons per year				
		ROG	NO _x	CO	PM ₁₀	PM _{2.5}
1	2008	1.39	8.76	11.69	5.60	1.40
	2009	1.58	7.28	10.22	2.00	0.59
2	2018	1.37	8.26	11.68	4.22	1.07
	2019	1.54	6.96	10.01	1.53	0.47
3	2028 ¹	1.36	8.22	11.62	4.22	1.07
	2029 ¹	1.54	6.94	9.98	1.53	0.47
4	2038 ¹	1.36	8.22	11.62	4.22	1.07
	2039 ¹	1.54	6.94	9.98	1.53	0.47

¹URBEMIS construction emission factors do not extend beyond 2020; factors for 2020 used for years after 2020.

**Table 4.12-3
Operations Emissions, Site 2 Alternative**

Phase	Year	Pollutant emissions – tons per year				
		ROG	NO _x	CO	PM ₁₀	PM _{2.5}
1	2008	0.74	0.63	6.20	0.52	0.50
	2009	0.69	0.57	5.78	0.52	0.50
	2010	0.68	0.54	5.67	0.52	0.50
	2015	0.64	0.57	5.97	0.91	0.88
	2018	0.69	0.55	6.29	1.55	1.49
	2019	0.69	0.55	6.33	1.63	1.57
2	2020	0.79	0.58	6.83	1.32	1.27
	2025	0.70	0.52	6.26	1.70	1.64
	2028	0.71	0.50	6.26	1.93	1.86
	2029	0.72	0.50	6.26	2.01	1.94
3	2030	0.83	0.50	6.92	2.10	2.02
	2035	0.75	0.43	6.57	2.09	2.01
	2038	0.74	0.41	6.53	2.09	2.01
	2039	0.74	0.41	6.51	2.09	2.01
4	2040	0.86	0.41	7.22	2.09	2.01

Calculated with URBEMIS 2002, v 8.7

Vehicle emissions for all years but 2008, 2020, 2030 and 2040 interpolated from 2010, 2015, 2020, 2025, 2030, 2035, and 2040.

The VA selects a majority of outside building surfaces such that there is not a periodic recoating; therefore, ROG values are 0.03 ton per year less than URBEMIS values.

**Table 4.12-4
Combined Air Emissions, Site 2 Alternative**

Phase	Year	Pollutant emissions – tons per year				
		ROG	NO _x	CO	PM ₁₀	PM _{2.5}
1	2008	2.13	9.39	17.89	6.12	1.90
	2009	2.27	7.85	16.00	2.52	1.09
	2010	0.68	0.54	5.67	0.52	0.50
	2015	0.64	0.57	5.97	0.91	0.88
	2018 ¹	2.06	8.81	17.97	5.77	2.56
	2019 ¹	2.23	7.51	16.34	3.16	2.04
2	2020	0.79	0.58	6.83	1.32	1.27
	2025	0.70	0.52	6.26	1.70	1.64
	2028 ²	2.07	8.72	17.88	6.15	2.93
	2029 ²	2.26	7.44	16.24	3.54	2.41
3	2030	0.83	0.50	6.92	2.10	2.02
	2035	0.75	0.43	6.57	2.09	2.01
	2038 ³	2.10	8.63	18.15	6.31	3.08
	2039 ³	2.28	7.35	16.49	3.62	2.48
4	2040	0.86	0.41	7.22	2.09	2.01
General Conformity <i>de minimis</i> Thresholds⁴		100	100	100	100 ⁵	100
Exceed Threshold?		No	No	No	No	No
SDAB forecast annual emissions ⁶		90,301	248,675	59,714	12,009	54,641
Exceed 10 percent of SDAB emissions?		No	No	No	No	No

Bold – maximum annual emissions for each pollutant.

¹ Phase 2 construction plus operations

² Phase 3 construction plus operations

³ Phase 4 construction plus operations

⁴ *De minimis* thresholds for San Diego Air Basin: Basic nonattainment O₃ (8-hour) precursors ROG and NO_x, and attainment/maintenance CO pollutants.

⁵ PM₁₀ and PM_{2.5} are attainment pollutants; nonattainment threshold used for NEPA analysis

⁶ Emissions forecast for 2020, from CARB 2006d.

As shown in Table 4.12-4, the forecast combined emissions for the Site 2 Alternative would be less than the General Conformity Rule *de minimis* limits and less than 10 percent of the forecast area emissions.

The analysis above considered that all of the vehicle trips to and from the proposed cemetery annex would be new trips that generate additional pollutant emissions in the region. The analysis overestimates the net emissions because it does not take into account the emissions that would be avoided by offering an alternative burial location to national cemeteries in Riverside or Los Angeles, and thus eliminating the much longer drive for many San Diegans.

General Conformity

The forecast combined emissions of ROG, NO_x, and CO for the proposed Site 2 Alternative would be less than the *de minimis* limits and less than 10 percent of the forecast area emissions. It is concluded that the Proposed Action would conform to the SIP, and a formal conformity determination would not be required.

Record of Non-Applicability

To document the General Conformity conclusions, a draft Record of Non-Applicability (RONA) has been prepared. A RONA is a memorandum required by DON policy that reflects the determination of an authorized official that a formal conformity analysis is not required for a proposed action (DON 2002b). The RONA is included in this EIS as Appendix D.

NEPA Analysis

The analyses above include all anticipated vehicle emissions and include PM₁₀ and PM_{2.5} as well as the pollutants examined for General Conformity. The *de minimis* limits are appropriate for evaluating significance under NEPA. The emissions of PM₁₀ and PM_{2.5}, as well as those of ROG, NO_x, and CO would be less than the *de minimis* limits. Therefore, there would be no substantial adverse air quality impacts.

Local Pollutants

Carbon Monoxide

In addition to the regional impact of vehicle emissions, under the NEPA analysis, it is necessary to consider the potential for local CO hotspots at locations where traffic is severely congested. A CO hotspot is an area of localized CO pollution caused by severe vehicle congestion at signalized intersections on major roadways. Procedures and guidelines, for use by agencies that sponsor transportation projects, to evaluate the potential local level CO impacts of a project are contained in “Transportation Project-Level Carbon Monoxide Protocol” (the Protocol) (UCD ITS 1997). The Protocol provides a methodology for determining the level of analysis, if any, required on a project. The guidelines comply with the CAA, federal and state conformity rules, and NEPA. Although the Proposed Action is not a transportation project, it would result in an increase in vehicle trips on local roadways and intersections. Therefore, the use of this protocol is appropriate for determining potential local level CO impacts.

A qualitative screening procedure is provided in the procedures and guidelines contained in the Protocol. The SDAB was redesignated as a CO attainment area subsequent to the passage of the 1990 CAA amendments. Continued attainment has been verified with the APCD. Therefore, in accordance with the Protocol, only projects that are likely to worsen air quality necessitate further analysis. According to the Protocol, projects may worsen air quality if they significantly increase the percentage of vehicles in cold start modes (i.e., the starting of a vehicle after at least 1 hour of nonoperation), defined as an increase in the number of vehicles operating in a cold start mode of 2 percent or more; those that significantly increase traffic volumes, defined as an increase of 5 percent over existing volumes; and those that worsen traffic flow, defined for intersections, as increasing average delay at signalized intersections operating at LOS E or F. The increased volume and cold start criteria are of concern where projects have concentrated traffic generation, such as at large residential developments or office buildings. A residential development would increase cold starts at nearby intersections in the AM peak hour. An office building would increase cold starts at nearby intersections in the PM peak hour.

The proposed cemetery annex is not a large residential or commercial project. Very few of the vehicles leaving the cemetery would be in cold start mode. The project traffic analysis, discussed in Section 4.11 of this EIS, indicates that project traffic would increase average delay at some signalized intersections operating at LOS F. Therefore, further analysis is required.

To simplify analysis and avoid or minimize dispersion modeling, various air quality agencies in California have developed conservative screening methods for project analysis. For analysis on the proposed cemetery annex, the methods of the Sacramento Metropolitan Air Quality Management District are used (SMAQMD 2004).³

For both the near-term (2010) analysis and the horizon year analysis, the traffic from the cemetery annex would increase delay at the signalized intersection of Miramar Road and Eastgate Mall. In both cases, the intersection would operate at LOS F without cemetery annex traffic. In the horizon year, the cemetery annex traffic would also increase delay at the signalized intersection of Miramar Road and Nobel Drive, which would operate at LOS E without and with the project. A screening analysis for potential CO impacts at Site 2 is shown in Table 4.12-5. The screening is independent of the intersection and is based on the background concentration of CO and a conservative estimate of project-related CO as a function of peak hour trip generation. As shown in the table, the anticipated 1-hour and 8-hour CO concentrations would be less than the national standards, and there would be no adverse impact.

**Table 4.12-5
CO Screening for Site 2 Alternative**

	2010	Horizon
Background 1-hour concentration, ppm ¹	7	5
Project-related 1-hour concentration, ppm ²	0.4	0.7
Anticipated total 1-hour concentration, ppm	7.4	5.7
National Ambient Air Quality Standard, ppm	35	35
Exceed standard?	No	No
Anticipated total 8-hour concentration, ppm ³	5.2	4.0
National Ambient Air Quality Standard, ppm	9.0	9.0
Exceed standard?	No	No

¹ Based on review of area data for 2004-2005. CO background in 2010 is anticipated to be approximately 75 percent of 2005; conservatively, this reduction was not taken for 2010, but is taken for the horizon year.

² For 2010, peak hour trip generation = 45 ADT (Kimley-Horn 2006); for projects with ≤ 100 ADT, CO contribution = 0.4 ppm (SMAQMD 2004). For horizon year, peak hour trip generation = 180 ADT; for projects with 100-200 ADT, CO contribution = 0.7 ppm.

³ Eight-hour concentration assumed to be 0.7 times 1-hour concentration.

³ The APCD has not developed CO screening criteria.

Toxic Air Contaminants

The proposed cemetery annex would not be a source of TACs. The cemetery annex would not be a sensitive receptor for TACs because of the transient nature of use. There would be no adverse impact from TACs.

Odors

The proposed cemetery annex would not be a source of odors. The City of San Diego North City Water Reclamation Plant is 0.35 mile (0.56 kilometer) northwest of Site 2; there are mixed commercial and light industrial uses north of Site 2 across Miramar Road; and the City of San Diego solid waste landfill is approximately 1 mile (1.6 kilometers) south of Site 2. Each of these facilities is a potential source of odor to Site 2. No odors were detected on visits to Site 2 and the surrounding area. Guideline documents for assessing odor impacts consider 1 mile (1.6 kilometers) as the distance from a landfill that would be unlikely to have impacts (BAAQMD 1999; SJVAPCD 2002). Distance and topography indicate that there would be no potential for a significant odor impact from these facilities at Site 2. Transient odors of jet fuel from departing aircraft may occasionally impact Site 2; because of the frequency and duration of occurrence, the impact would be less than significant.

Mitigation/Abatement Measures

There would be no significant impacts and no mitigation measures would be required. However, to minimize the emissions of dust and particulates during grading and earthwork operations, the following measures would be incorporated into the Proposed Action:

1. The area disturbed by clearing, grading, earth-moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
2. Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
3. All trucks shall be required to cover their loads as required by California Vehicle Code §23114.

4. All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.
5. Graded and/or excavated inactive areas of the construction site shall be monitored by an independent inspector appointed by MCAS Miramar or the VA at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over 4 days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.
6. On-site traffic shall not exceed 15 mph (24 kph). Signs shall be posted on-site stating the 15 mph (24 kph) limit, or less where appropriate.
7. During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth-moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site.
8. Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
9. Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

The following measure is recommended for incorporation into the project design and operations:

10. The project design shall incorporate the placement of electrical power outlets at sufficient locations around the cemetery to enable the use of electrical equipment for landscape maintenance instead of gas engine-driven equipment.

In addition to the above measures, the following additional measures are proposed to further minimize air emissions:

- Prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. Control technologies such as particle traps control approximately 80 percent of DPM. Specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions.
- Ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use.
- Restrict engine idling to the extent practicable.
- Prohibit engine tampering to increase horsepower, except when meeting manufacturer's recommendations.
- Locate diesel engines, motors, and equipment staging areas as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals).
- Require the use of low sulfur diesel fuel (<15 parts per million sulfur) for diesel construction equipment.
- Reduce construction-related trips of workers and equipment, including trucks. Develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.
- Use lower-emitting engines and fuels, including electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations, where applicable.

4.12.2 Site 4 Alternative

Impacts

The Site 4 Alternative would be smaller than the Site 2 Alternative. Other than size, the other Site 4 Alternative factors affecting construction and operations of the proposed cemetery annex would be similar to those of the Site 2 Alternative. Therefore, both construction and operations emissions at the Site 4 Alternative would be equal to or less than at the Site 2 Alternative and would be equal to or less than those shown in Table 4.12-4. The forecast combined emissions for the proposed cemetery annex at Site 4 would be less than the General Conformity Rule *de minimis* limits and less than 10 percent of the forecast area emissions.

General Conformity

The forecast combined emissions of ROG, NO_x, and CO for the Proposed Action at either Site 2 or Site 4 would be less than the *de minimis* limits and less than 10 percent of the forecast area emissions. It is concluded that the Proposed Action would conform to the SIP, and a formal conformity determination would not be required. To document the General Conformity Conclusion, a statement has been included in the Executive Summary of this EIS, as directed in Chapter 12 of MCO P5090.2A.

NEPA Analysis

As discussed for the Site 2 Alternative, the analyses include all anticipated vehicle emissions and include PM₁₀ and PM_{2.5} as well as the pollutants examined for General Conformity. The emissions of PM₁₀ and PM_{2.5}, as well as those of ROG, NO_x, and CO would be less than the *de minimis* limits. Therefore, there would be no significant adverse air quality impacts.

Local Pollutants

Carbon Monoxide

In the near-term scenario, project traffic from the Site 4 Alternative would not increase delay at any signalized intersections operating at LOS E or F. In the horizon year scenario, Site 4 peak hour traffic would increase delay at two LOS E or F intersections: SR 52 eastbound off-ramps/Kearny Villa Road, and SR 52 westbound off-ramps/Kearny Villa Road. Background CO concentrations in the vicinity of Site 4 would be the same as in the vicinity of Site 2; peak hour trip generation for the Site 4 Alternative would be less than half of the trip generation for the Site 2 Alternative. Therefore, it is concluded that CO concentrations for Site 4 intersections would be less than estimated for Site 2 (Table 4.12-5), and there would be no adverse CO impacts for the Site 4 Alternative.

Toxic Air Contaminants

As described above for the Site 2 Alternative, the Site 4 Alternative would not be a source of TACs. The cemetery annex would not be a sensitive receptor for TACs because of the transient nature of use and there would be no adverse impact from TACs.

Odors

The proposed cemetery annex at Site 4 would not be a source of odors. The City of San Diego solid waste landfill is approximately 2.3 miles (3.8 kilometers) west of Site 4. There is no potential odor impact from the landfill at this distance.

Mitigation/Abatement Measures

The mitigation and abatement measures described in Section 4.12.1 would also apply to the Site 4 Alternative.

4.12.3 No Action Alternative

Impacts

Under the No Action Alternative, the proposed cemetery would not be constructed. Local veterans' family members and friends would have to travel back and forth to Riverside National Cemetery for interments and cemetery visits. Each round trip would be approximately 160 miles (257 kilometers) longer than a trip to the Fort Rosecrans National Cemetery Annex, and the additional distance would result in additional vehicle pollutant emissions, adding to the regional O₃ and particulate concentrations in both the SDAB and South Coast Air Basins.

Mitigation Measures

No mitigation measures are proposed.

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4.13 NOISE

This section will address construction noise and operation noise for the two development alternatives and the No Action Alternative.

4.13.1 Site 2 Alternative (Preferred Alternative)

Impacts

Construction Noise

Construction of the Proposed Action would take place during daytime hours and would result in increased ambient daytime noise levels in the vicinity of the project site. In general, construction activities are carried out in phases, and each phase has its own noise characteristics based on the mix of construction equipment in use. Typical maximum noise levels at a distance of 50 feet (15 meters) from the noise source for each of the major phases of construction are shown in Table 4.13-1. Typical construction projects, with equipment moving from one point to another, work breaks, and idle time, have long-term noise averages that are lower than the louder short-term noise events. Thus, the maximum 1-hour average noise level, at a distance of 50 feet (15 meters) from the construction area, would be at least 5 dBA less than the noise levels shown in Table 4.13-1. Peak noise events may occur during trenching and excavation, when there may be a combination of noise from several pieces of equipment in close proximity, including the noise of backup alarms. Noise levels of other activities, such as framing or paving, would be less.

**Table 4.13-1
Typical Noise Level Ranges at Construction Sites**

Construction Phase	Maximum Noise level at 15 meters (50 feet) – dBA	
	Minimum Required Equipment On-site	All Pertinent Equipment On-site
Clearing	83	83
Excavation	75	88
Foundation/Conditioning	81	81
Paving	65	81
Finishing and Cleanup	72	88

Source: Bolt, Beranek and Newman 1971

If a construction project requires the use of impact equipment, such as pile drivers, hoe-rams, or jackhammers, noise levels may be higher than shown in Table 4.13-1. Impact equipment generally produces louder maximum noise levels than diesel engines, and the character of the noise is different. However, substantial use of impact equipment is not anticipated for the Proposed Action.

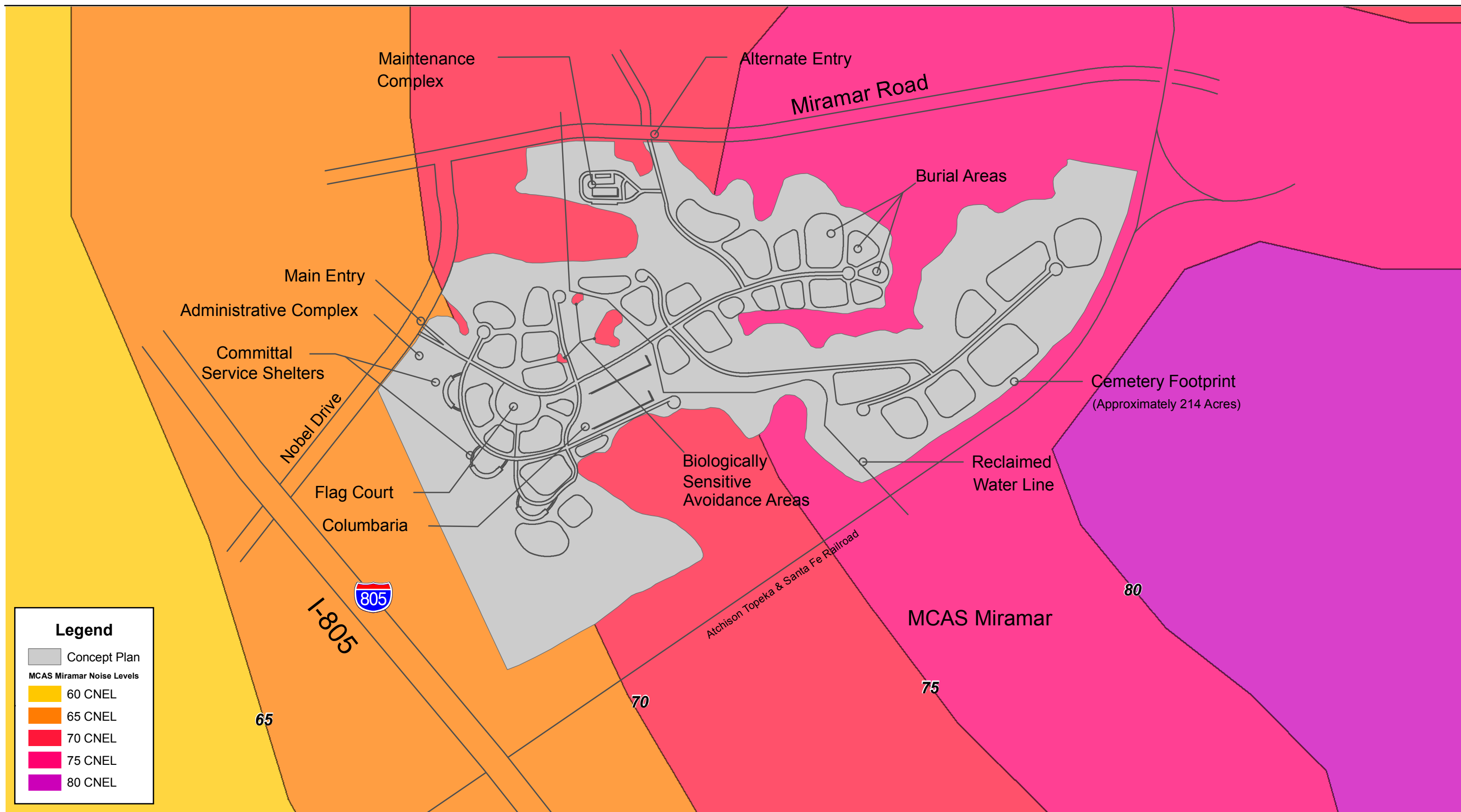
For the Proposed Action, the loudest construction noise is expected to occur during clearing and grading. A scenario considering three pieces of earth-moving equipment, such as a bulldozer, scraper, and loader grader, plus two trucks, would result in hourly average noise levels of 83 dBA L_{eq} at a distance of 50 feet (15 meters). Construction equipment noise is considered a point source, with attenuation within short distances at a rate of 6 dBA per doubling of distance (e.g., a noise level of 90 dBA at 50 feet [15 meters] would be 84 dBA at 100 feet [30 meters], 78 dBA at 200 feet [60 meters], etc.).

The nearest sensitive receptors to Site 2 are the multi-family homes west of I-805 and north of Nobel Drive, approximately 3,000 feet (1.0 kilometer) west of the proposed site. These residences are located on Toscana Way and Toscana Drive in the Renaissance neighborhood. At this distance, the maximum noise level from construction activities is calculated at less than 55 dBA and the average hourly noise level would be less than 50 dBA L_{eq} . It is very unlikely that the construction noise would be heard at these residences, because of traffic noise from I-805, which is between Site 2 and the residences; the regular aircraft noise; and local neighborhood noise. The noise levels would be less than the 75 dBA L_{eq} threshold of the City of San Diego noise ordinance. There would be no adverse construction noise impact.

Long-Term Noise Impacts

Noise-Land Use Compatibility

Figure 4.13-1 shows the aircraft noise contours on Site 2. Aircraft noise levels over the site range from 68 to 79 dBA CNEL, noise zone 2. As shown in Table 3.13-2, cemeteries are a compatible use in this noise range, with the stipulation that noise reduction be provided in buildings where the public is received and in other noise sensitive areas or where the normal noise level should be low. In these noise-sensitive areas, the interior noise level must be reduced to less than 50 dBA CNEL. Thus, attenuation for aircraft noise would be included in the design for the Administrative Complex. Noise attenuation is not required at the Maintenance Complex since people would not gather there and it is not a noise-sensitive area. While a low noise level would be desirable during committal services and graveside burials, these areas of a military



Legend

- Concept Plan
- MCAS Miramar Noise Levels**
- 60 CNEL
- 65 CNEL
- 70 CNEL
- 75 CNEL
- 80 CNEL

Source: MCAS Miramar 2005; Eagle Aerial 2004

700 350 0 700 Feet

Scale: 1:8,400; 1 inch = 700 feet

Figure 4.13-1
Site 2 Concept Plan
with Aircraft Noise Contours

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cemetery are outdoor use areas and are therefore not classified as noise sensitive. In fact, planned aircraft “flyovers” are sometimes part of military burials. Some outdoor services would have to be paused during aircraft noise events and then resumed. This is not a unique situation for San Diego, as plays at the outdoor theater in Balboa Park regularly pause each time there is an aircraft noise event from San Diego International Airport. Noise impacts to outdoor services would affect people who are anticipated to be infrequent visitors for relatively short periods of time. With the provisions of adequate interior noise attenuation for the Administrative Complex, there would be no significant adverse noise-land use compatibility impact.

Noise Generated on the Project Site

Following the opening of the cemetery, the principal sources of on-site noise would be vehicles bringing people and materials to the site, landscape maintenance equipment, and small utility construction equipment that may be used to excavate and fill in graves. Vehicle speed would be limited to 15 mph (24 kph). Noise from these sources would be less than typical construction noise. Noise generated on the project site would not be heard at off-site sensitive receptors because of the distance, which is approximately 3,000 feet (1.0 kilometer), and the intervening traffic on major roadways. There would be no adverse noise impact from noise generated on-site.

Noise Generated Away from the Project Site

Following construction completion, noise would be generated off-site by vehicle traffic utilizing the cemetery. Traffic generated by the Proposed Action is described in the project traffic report (Kimley-Horn 2006) and Section 4.11 of this EIS.

It is forecast that 30 percent of the 1,012 daily project-generated trips would use Miramar Road east of Site 2, 17 percent would use La Jolla Village Drive west of I-805, and 14 percent would use Nobel Drive west of I-805. There are residences adjacent to each of these roadways. The increase in traffic volumes due to project traffic would be less than 1.5 percent on each roadway, and the increase in noise would be less than 0.1 dBA. A typical conservative standard for a significant noise increase from project traffic is a 3 dBA, which occurs with a doubling of traffic, assuming no change of speed or percentage of trucks. The noise increase due to the Proposed Action would be imperceptible and the impact would be negligible.

Mitigation Measures

To reduce the interior noise levels to a satisfactory level, the Administrative Complex shall be designed to provide an interior noise level less than 50 dBA CNEL.

4.13.2 Site 4 Alternative

Impacts

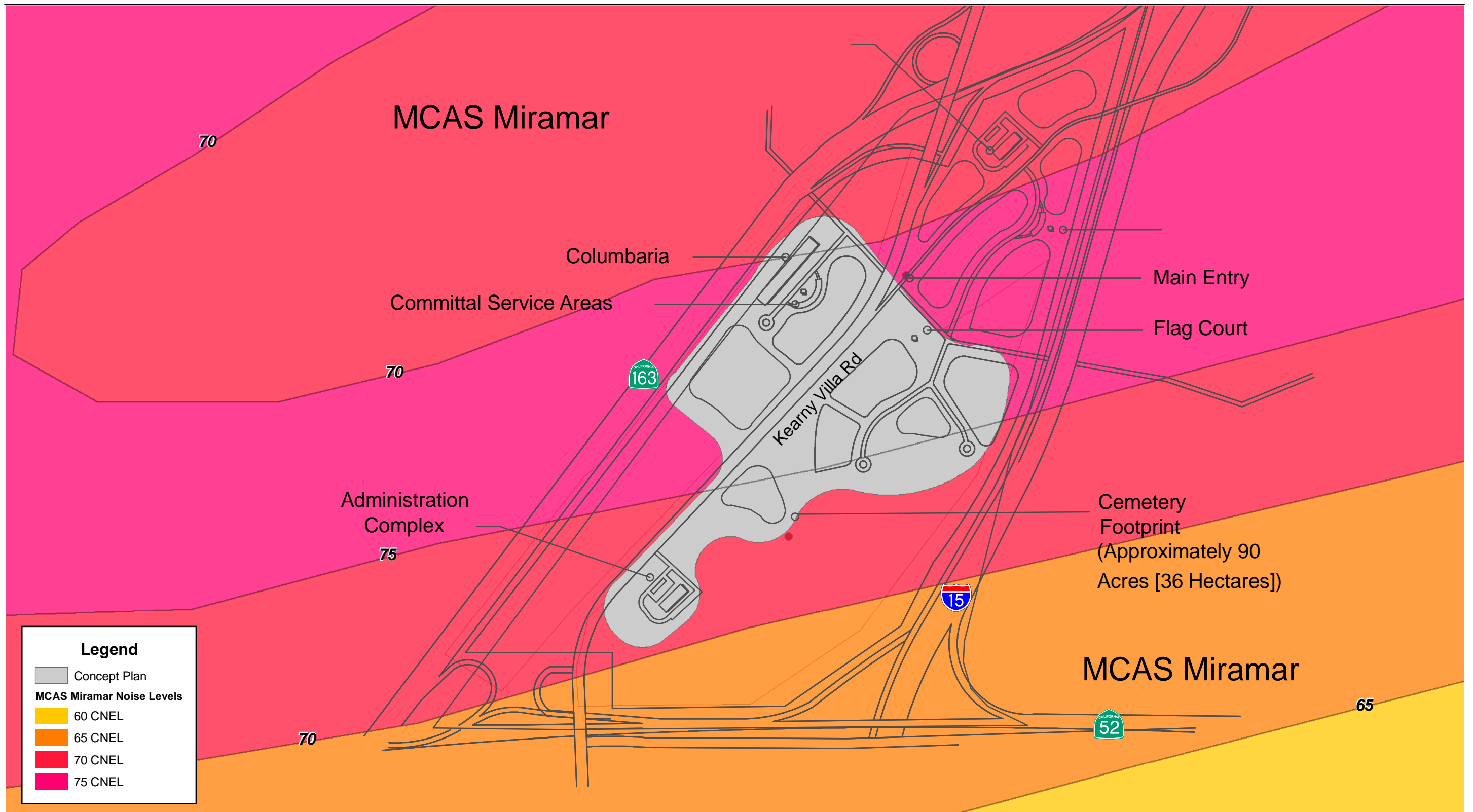
Construction Noise

The nearest sensitive receptors to Site 4 are residences and the Vista Grande Elementary School in the Tierrasanta community, south of SR 52 and west of Santo Road that are approximately 1.0 mile (1.6 kilometers) to the southeast. At this distance, the maximum noise level from construction activities is calculated at less than 50 dBA and the average hourly noise level would be less than 45 dBA L_{eq} . It is very unlikely that the construction noise would be heard at these residences, because of traffic noise from I-15 and SR 52, which are between Site 4 and the residences; the regular aircraft noise; and local neighborhood noise. The noise levels would be less than the 75 dBA L_{eq} threshold of the City of San Diego noise ordinance. There would be no adverse construction noise impact.

Long-Term Noise Impacts

Noise-Land Use Compatibility

Figure 4.13-2 shows the aircraft noise contours on Site 4. Aircraft noise levels over the site range from 70 to 78 dBA CNEL, noise zone 2. As shown in Table 3.13-2, cemeteries are a compatible use in this noise range, with the stipulation that noise reduction be provided in buildings where the public is received and other noise sensitive areas or where the normal noise level should be low. The interior noise level must be reduced to less than 50 dBA CNEL. Thus, as described above for Site 2, attenuation for aircraft noise would be included in the design for the Administrative Complex. While a low noise level would be desirable during outdoor burials, these areas of a military cemetery have traditionally not been classified as noise sensitive. In fact, planned aircraft “flyovers” are sometimes part of military burials. Some outdoor services would have to be paused during aircraft noise events and then resumed. Noise impacts to outdoor services would affect people who are anticipated to be infrequent visitors for relatively short periods of time. With the provision of adequate noise attenuation for the Administrative Complex, there would be no significant adverse noise-land use compatibility impact.



Source: Eagle Aerial 2004

700 350 0 700 Feet

Scale: 1:8,400; 1 inch = 700 feet

Figure 4.13-2
Site 4 Concept Plan
with Aircraft Noise Contours

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Noise Generated on the Project Site

As described for the Site 2 Alternative, the principal sources of on-site noise would be vehicles bringing people and materials to the site, landscape maintenance equipment, and small utility construction equipment that may be used to excavate and fill in graves. Vehicle speed would be limited to 15 mph (24 kph). Noise from these sources would be less than typical construction noise. Noise generated on the project site would not be heard at off-site sensitive receptors because of the distance, which is approximately 1.0 mile (1.6 kilometers), and the intervening traffic on major roadways. There would be no adverse noise impact from noise generated on-site.

Noise Generated Away from the Project Site

Following construction completion, noise would be generated off-site by vehicle traffic utilizing the cemetery. Traffic generated by the Proposed Action is described in the project traffic report (Kimley-Horn 2006) and Section 4.11 of this EIS. There would be no significant volumes of project-generated traffic on streets with adjacent residences. There would be no off-site traffic noise impact.

Mitigation Measures

To reduce the interior noise levels to a satisfactory noise level, the Administrative Complex shall be designed to provide an interior noise level less than 50 dBA CNEL.

4.13.3 No Action Alternative

Impacts

The proposed cemetery annex would not be developed and operated and no noise impacts would occur.

Mitigation Measures

No mitigation measures are proposed.

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CHAPTER 5.0

CUMULATIVE IMPACTS

NEPA requires an analysis of the incremental effects of an action that are cumulatively considerable when viewed in connection with closely related present, planned, and reasonably foreseeable future actions. The contribution of a proposed action to the overall cumulative impacts in the region is of particular concern. In general, effects of a particular action or group of actions must meet the following criteria to be considered cumulative impacts:

- Effects of several actions occur in a common locale or region;
- Effects are not localized (i.e., can contribute to effects of an action in a different location);
- Effects on a particular resource are similar in nature (i.e., affects the same specific element of a resource); and
- Effects are long term; short-term impacts dissipate over time and cease to contribute to cumulative impacts.

The Proposed Action does not represent an influx of new population into the region, as the project would utilize current personnel of Fort Rosecrans National Cemetery and assets of MCAS Miramar. The impacts associated with this action are related to the construction and operation of the proposed cemetery annex. Therefore, projects discussed below are those that have the potential to interact directly or indirectly with the Proposed Action. Other projects that do not have the potential to interact cumulatively with the Proposed Action are not addressed in this EIS.

Section 5.1 provides a description of relevant projects with respect to potential cumulative impacts with the Proposed Action. Section 5.2 provides a summary of potential cumulative environmental impacts associated with the Proposed Action.

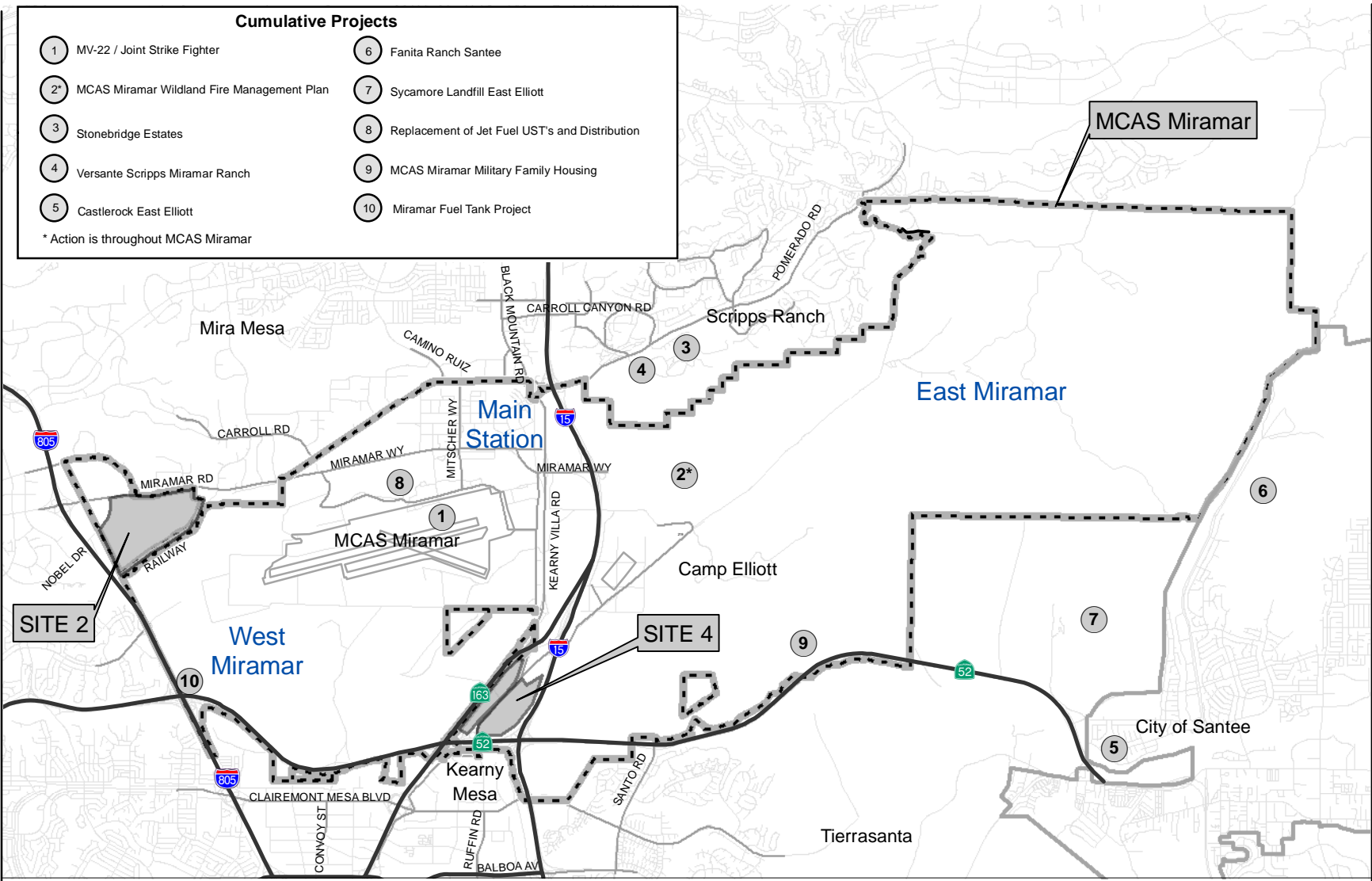
5.1 OTHER PLANNED PROJECTS IN THE VICINITY OF THE PROPOSED ACTION

This section describes recent past, ongoing, and reasonable foreseeable actions in the vicinity of the Proposed Action that could contribute incrementally to cumulative environmental impacts.

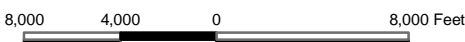
These projects are neither dependent on the Proposed Action addressed in this EIS nor part of it. Where applicable, environmental analysis of the other projects addressed in this section has been or will be conducted separately, with the results of those analyses incorporated into documents prepared specifically for these projects. The planned projects listed in this section as shown in Table 5-1 are expected to be completed within the next 5 years. Figure 5-1 shows the location of the cumulative projects.

**Table 5-1
Cumulative Projects in the Vicinity of the Proposed Action**

Project Name	Approved or Proposed Uses	Anticipated Buildout Date
Basing of the MV-22 and Joint Strike Fighter, MCAS Miramar	Proposed replacement of CH-46E medium-lift helicopters with the MV-22 Osprey for the Third and Fourth Marine Aircraft Wings at MCAS Miramar. Proposed replacement of the F-18/AV-8B with the Joint Strike Fighter, or F-35, at MCAS Miramar.	2012
MCAS Miramar Wildland Fire Management Plan	Proposed comprehensive vegetation and fire management program that includes fire prevention and suppression measures that would serve to prevent and/or control the frequency, size, distribution, and intensity of wildfires.	2011
Stonebridge Estates (formerly Rancho Encantada) Scripps Miramar Ranch	Approved 2,658-total-acre (1,076-hectare) development with 828 single-family dwelling units, 106 multi-family dwelling units, 26 acres (11 hectares) school/park sites, and 5 acres (2 hectares) institutional areas.	Anticipated to be built out by 2007
Versante, Scripps Miramar Ranch	Approved 26 single-family dwelling units.	Constructed
Castlerock, East Elliott	Proposed 192 acres (78 hectares) 376 single-family dwelling units and 122 multi-family dwelling units.	2010 (Final Environmental Impact Report [EIR] expected in 2007)
Fanita Ranch, Santee	Proposed 2,550 acres (1,032 hectares), up to 1,300 dwelling units and luxury office and supporting commercial.	2010 (Final EIR expected in early 2007)
Sycamore Landfill, East Elliott	35-acre (14-hectare) expansion, 21 acres (9 hectares) for ancillary uses, including fill Little Sycamore Canyon, then build up about 250 to 300 feet (76 to 91 meters) in height.	30-year life expectancy
Replacement of Jet Fuel Underground Storage Tanks and Distribution System, MCAS Miramar (P-125)	Replacement of 7 existing jet fuel underground storage tanks with 3 aboveground tanks and modification of associated distribution lines.	2009
MCAS Miramar Military Family Housing	Approved 1,600 units.	2009
Miramar Fuel Tank Project at MCAS Miramar	Development of two 80,000-barrel breakout tanks to increase fuel storage capacity for fuel transfer to MCAS Miramar and Naval Base Point Loma (NBPL).	2008 or early 2009



Sources: SANDAG



Scale: 1:96,000; 1 inch = 8,000 feet

Figure 5-1
Cumulative Projects in
the Vicinity of the Proposed Action

5.1.1 MV-22 and Joint Strike Fighter

The DON is preparing an EIS for the introduction of the MV-22 Osprey to the Third and Fourth Marine Aircraft Wings to replace the veteran CH-46E medium-lift helicopters, which the U.S. Marine Corps plans to remove from service. The MV-22 could potentially be based at MCAS Camp Pendleton, MCAS Miramar, MCAS Yuma, Naval Air Facility El Centro, or Edwards Air Force Base.

The Joint Strike Fighter, or F-35, is the next generation warplane and could also be based at MCAS Miramar as early as 2012. The F-35 will be the replacement aircraft for the Marine Corps F-18/AV-8B. The F-35, still in development, is a single-seat, supersonic stealth aircraft, that will be used by the Marine Corps, Navy and Air Force. The Marine Corps version will be a short take-off, vertical landing aircraft.

5.1.2 MCAS Miramar Wildland Fire Management Plan

The MCAS Miramar Fire Department has the responsibility of fire prevention and fire suppression at MCAS Miramar. A Wildland Fire Management Plan is being prepared to guide the wildland fire management and planning decisions of the MCAS Miramar Fire Department for the next 5 years (2006-2011). It would provide a comprehensive vegetation and fire management program including fire prevention and suppression measures that would serve to prevent and/or control the frequency, size, distribution, and intensity of wildfires. The measures are intended to protect high value areas on (e.g., military assets and sensitive natural and cultural resources) and off MCAS Miramar (e.g., residential and commercial areas that border MCAS Miramar). The actions would include fuel management via mechanical, prescribed fire, or chemical methods in order to reduce the risk of wildfire. Other measures could include surveying and documentation of fuel load conditions throughout MCAS Miramar, and the construction of new fuelbreaks.

5.1.3 Rancho Encantada Precise Plan

The Rancho Encantada Precise Plan Final Environmental Impact Report was approved in August 2001. Stonebridge Estates (formerly Rancho Encantada), a private sector development, is located in the new San Diego community of Rancho Encantada between the MCAS Miramar northeastern boundary and the South Poway Business Industrial Park/Scripps Poway Parkway. The proposed 2,668-acre (1,076-hectare) development will consist of 828 single-family homes and 106 multi-family dwelling units in two neighborhoods: Mill Creek is being developed by

McMillin Homes, and Astoria is being developed by Brookfield Homes. An elementary school/public park site is proposed within Astoria. Other proposed land uses within the development include two institutional areas that could be used for churches, nurseries, recreational uses, and public utilities. About 80 percent of the entire property will be retained in its natural state, and 1,800 acres (728 hectares) will be given to the City of San Diego to become Mission Trails Regional Park North.

The project is currently under construction. Mill Creek, with 277 dwelling units, is planned to open in 2006, and the entire Stonebridge Estates development is anticipated to be built out by 2007.

5.1.4 Versante

A small residential development was recently constructed east of Pomerado Road at the Spring Canyon Road intersection. The 26 single-family dwellings are located in the westernmost area of the Rancho Encantada community.

5.1.5 Castlerock

A 498-unit residential development is proposed in the East Elliott area of San Diego. The low-density residential community, being developed by Pardee Homes, would include 376 single-family homes and 122 multi-family homes on a 192-acre (78-hectare) site that is located adjacent to the Santee city boundary. The project is currently being processed by the City of San Diego. Students generated by the development would attend schools in the Santee School District. Potential traffic impacts have been identified.

5.1.6 Fanita Ranch

The Fanita Ranch Specific Plan area in Santee was purchased by Barratt American Inc. in July 2003. The current development proposal for the 2,550-acre (1,032-hectare) site is for low-density residential development with a maximum of 1,300 dwelling units on estate-sized lots (minimum of 8,000 square feet [743 square meters]). The development could also have neighborhood commercial uses and high-end office complexes. The preparation of a master plan is required for any development at Fanita Ranch, which would be subject to the goals and objectives of the City of Santee General Plan Land Use Element.

5.1.7 Sycamore Landfill

The Sycamore Landfill would be expanded by about 35 acres (14 hectares). The expansion would include an additional 21 acres (9 hectares) for an administration building, two sedimentation basins, a scale, and a maintenance building. Little Sycamore Canyon would be filled up with refuse; then a 250- to 300-foot-high (76- to 91-meter-high) mound would be created. The life expectancy of the landfill would be 30 years.

5.1.8 Replacement of Jet Fuel Underground Storage Tanks and Distribution System (P-125)

This Action would replace seven aging jet petroleum fuel (JP-5) underground storage tanks (USTs) with three aboveground tanks to provide greater storage capacity and to modify the distribution pipeline system so it does not traverse Rose Canyon. The action would include removal of USTs, the abandonment and removal of other existing facilities, construction of new facilities, and installation of temporary facilities. The action is needed because the underground storage and delivery system is approximately 50 years old, has exceeded its useful life cycle, and is incurring excessive operation and maintenance costs. The aging system has the potential for undetected leaks that could contaminate the soil and/or enter the Rose Canyon drainage. The new distribution system would be equipped with a centralized leak detecting device. This would be a computerized system that would perform isolated tests on the pipeline and statistically analyze the results to determine any leaks in the system.

5.1.9 MCAS Miramar Military Family Housing

The MCAS Miramar military family housing project includes construction of up to 1,600 military family housing units and supporting infrastructure on MCAS Miramar. This project is in response to a shortage of military family housing in the San Diego area. In an effort to provide the most cost-effective and beneficial housing referral and family housing program services, the Marine Corps and Navy have agreed to combine military family housing resources within the San Diego metro region. The housing project would be implemented through the Navy's Public Private Venture (PPV) Housing Program. PPV, authorized pursuant to Subchapter IV of Chapter 169 of Title 10, USC, includes a series of authorities that allow the DoD, and in turn the Marine Corps, to work with the private sector nationwide to build and renovate military housing in key areas of need.

5.1.10 Miramar Fuel Tank Project

The U.S. Marine Corps is proposing the construction and operation of a Bulk Fuel Storage facility at MCAS Miramar. The purpose of the project is to increase the fuel storage capacity for fuel delivery to MCAS Miramar and Naval Base Point Loma.

The Miramar fuel tank project is to develop an above ground storage tank on approximately 6 to 7.5 acres (2.4 to 3.0 hectares) in the southwest corner of land owned by MCAS Miramar. The project would construct two 80,000-barrel breakout tanks with space for two future 80,000-barrel fuel tanks, transfer pumps, surge pump, micron filters, connecting pipelines, access roads, utility alignments, a new electrical substation, parking and temporary construction areas. The project will also include modifications and removal of existing valve manifolds and underground piping within the disturbed, fenced area at Miramar Junction. A FONSI was signed 1 June 2007 with the anticipated buildout expected to occur in 2008 or early 2009.

5.2 ENVIRONMENTAL ANALYSIS OF CUMULATIVE EFFECTS

The planned actions discussed in Section 5.1 were evaluated for cumulative impacts related to the environmental resources discussed in this EIS. The localized nature of certain environmental effects and comprehensive MCAS Miramar policies for managing environmental resources and mitigation of impacts are all factors that were considered in the significance of environmental impacts. The new actions proposed as part of the Fort Rosecrans National Cemetery Annex would begin in 2007 and go through 2040. The potential for an overlap of adverse impacts with respect to the implementation of the proposed cemetery annex was used as the basis for analysis. The potential overlap was determined based on similar geographic boundaries and time frames. The geographic boundaries included MCAS Miramar and areas surrounding Site 2 and Site 4. The time frames extended from actions currently occurring through known actions into the future.

Effects of the Proposed Action on land use, socioeconomics, utilities, public services, visual resources, cultural resources, soils and geology, water resources, public health and safety, and noise are not significant and would not incrementally contribute to a significant cumulative impact associated with the other planned projects discussed in Section 5.1. Potential cumulative effects of the Proposed Action could occur to cultural resources, biological resources, traffic/circulation, and air quality. Each of these resource areas is discussed below.

5.2.1 Biological Resources

The Site 2 Alternative would impact approximately 12.97 acres (5.23 hectares) of recently occupied CAGN habitat, and 200.63 acres (81.21 hectares) of habitat unoccupied by CAGN, including 11.55 acres (4.67 hectares) of regionally rare plant communities. Additionally, 29 basins (0.309 acre [0.125 hectare]) with listed species present, including 2 vernal pools (0.010 acre [0.004 hectare]), and 4 vernal pools (0.013 acre [0.005 hectare]) with no listed species will be directly impacted. Compensation would occur in compliance with the INRMP and would include approximately 9.60 acres (3.88 hectares) of vegetation (coastal sage and chaparral) for permanent direct impacts to recently occupied CAGN habitat and 6.38 acres (2.58 hectares) for permanent direct impacts to regionally rare plant communities. Compensation for permanent direct impacts to vernal pool species would include approximately 0.492 acre (0.199 hectare) of vernal pools and man-made depressions.

Development of Site 2 would impact five ephemeral drainages totaling approximately 3,333 feet (1,015 meters) and 0.230 acre (0.093 hectare). A formal wetland assessment of the functions and values of the wetlands and waters for the project site will be conducted, and this wetland delineation will consist of a jurisdictional delineation (i.e., determining whether stream features are jurisdictional waters or contain jurisdictional wetlands) within proposed permanent impacts areas and outside the proposed project footprint for temporary impacts related to construction activities. A formal ACOE jurisdictional determination and delineation report for waters and wetlands suitable for submittal to the ACOE and USFWS to request their review and concurrence of the determination and delineation results. The majority of the drainages within the property are unvegetated waters that would be regulated by the ACOE. The results of this assessment in coordination with the ACOE and USFWS will determine the measures required to mitigate for any impacts to the wetland areas.

The Site 4 Alternative would directly impact approximately 14.88 acres (6.03 hectares) of recently occupied CAGN habitat, and 74.90 acres (30.30 hectares) of habitat unoccupied by CAGN, including 8.35 acres (3.38 hectares) of regionally rare plant communities. Additionally, 50 basins (0.585 acre [0.237 hectare]) with listed species present, including 25 vernal pools (0.261 acre [0.106 hectare]), and 33 vernal pools (0.153 acre [0.062 hectare]) with no listed species will be directly impacted. Impacts to San Diego mesa mint, SDFS, and CAGN would also occur.

The proposed Stonebridge Estates would directly impact approximately 200 acres (81 hectares) of coastal sage scrub and coastal sage scrub/chaparral ecotone, 50 acres (20 hectares) of

San Diego barrel cacti, one CAGN, and several wildlife Species of Regional Concern. The MCAS Miramar Military Family Housing project would impact 17 acres (7 hectares) of coastal sage scrub, 9 acres (4 hectares) of disturbed coastal sage scrub, 2 acres (0.8 hectare) of native grassland, and 0.3 acre (0.1 hectare) of vernal pools/freshwater seeps. Castlerock and the Sycamore Landfill expansion would also impact sensitive species. The Replacement Jet Fuel project would result in impacts to 5.2 acres (2.1 hectares) of recently occupied CAGN habitat. Project components would affect but not jeopardize the continued existence of the CAGN species.

The Kinder Morgan Breakout Fuel Tank project would also result in a total of 10.06 acres (4.07 hectares) of local vegetation communities being impacted. Approximately 5.22 acres (2.11 hectares) of disturbed habitat, 1.5 acres (0.60 hectare) of disturbed coastal sage scrub (predominantly broom baccharis) and 0.75 acre (0.30 hectare) of mixed coastal sage/chaparral scrub would be permanently removed by facility construction and would likely disturb potential foraging habitat of the CAGN. Approximately 1.17 acres (0.47 hectare) of disturbed habitat would be temporally disturbed from establishment of a construction laydown area. Approximately 0.32 acre (0.13 hectare) of disturbed habitat, 0.50 acre (0.20 hectare) of coastal sage scrub, 0.19 acre (0.08 hectare) of disturbed coastal sage scrub, and 0.41 acre (0.16 hectare) of nonnative grasses would be temporarily disturbed by pipeline installation. All temporary disturbed coastal sage scrub and chaparral habitats would be restored within areas temporarily disturbed by project activities. Any wart-stemmed ceanothus that cannot be avoided during installation of the pipeline would be relocated to an appropriate location in the project vicinity, watered, and monitored as part of the temporary impact restoration work. Permanent impacts to coastal sage scrub and chaparral habitats will be compensated by acquisition of off-site in-kind habitat at compensation ratios set forth by the INRMP. By implementing the proposed avoidance/minimization measures and the proposed compensation for permanently disturbed habitat the project would result in a minor, mitigated loss of regionally rare coastal sage scrub and sage scrub chaparral.

These impacts to biological resources would be mitigated to less than significant through site-specific mitigation, and no cumulative impacts would occur. Impacts associated with the Wildland Fire Management Plan are not known at this time since decisions regarding specific actions and location have not yet been made for either project. It is assumed that any impacts identified for this project would be mitigated in accordance with the ratios identified in the INRMP (MCAS Miramar 2006). Alternatives for West Coast basing of the MV-22 include splitting Squadrons between MCAS Miramar and another air station, or basing all squadrons at MCAS Miramar. The alternative for basing all squadrons at MCAS Miramar potentially would

present significant impacts to vernal pools and threatened/endangered species therein. That basing alternative would not be selected, however, without consultation with and concurrence by the USFWS that the impacts could be adequately mitigated, and thus cumulative impacts to biological resources would not be anticipated. Joint Strike Fighters, if based at MCAS Miramar, would be assigned to existing F/A-18 squadron spaces, and are not expected to create significant cumulative impacts to biological resources. It is not anticipated that there would be any cumulative biological impacts associated with the MV-22 and Joint Strike Fighter actions; however, any potential impacts would be addressed in a separate EIS for each of these actions. With the compensation included for this action and coordination with the USFWS, significant cumulative impacts to biological resources are not anticipated. The USFWS issued a Biological Opinion on 6 April 2007 (1-6-06-F-4652.3 [Appendix F]). The Biological Opinion included a cumulative effects analysis focused on non-federal actions within the vicinity of MCAS Miramar that did not identify any other non-federal actions that would cumulatively affect the threatened and endangered resources affected by this project.

5.2.2 Traffic/Circulation

The additional daily traffic generated by the Site 2 Alternative under the near-term (Year 2010) scenario would be 253 trips. The additional daily traffic generated by the Site 2 Alternative at buildout (horizon year 2030) scenario would be 1,012 trips. These volumes are relatively low and the peak traffic hours are generally avoided. The Proposed Action impacts would not be traffic significant. The Site 4 Alternative would result in a significant impact at the SR 52 westbound ramps/Kearny Villa Road intersection in the near-term (Year 2010) scenario and would result in a significant cumulative impact at the SR 52 eastbound off-ramp/Kearny Villa Road intersection and at the SR 163 southbound ramps/Kearny Villa Road intersection in the horizon year (Year 2030) scenario.

Most of the cumulative development projects described in Section 5.1 would also generate additional traffic. These developments are located in East Miramar, Scripps Ranch, East Elliott, and Santee and the additional traffic would be focused in those areas and not in the area of northwest MCAS Miramar. The Wildland Fire Management Plan, MV-22, Joint Strike Fighter, Replacement Jet Fuel project, and the Miramar Fuel Tank Project would generate little or no additional traffic in the Site 2 Alternative area. The Site 2 Alternative would not result in any significant cumulative impacts. The Site 4 Alternative would result in a significant cumulative impact at the SR 52 eastbound off-ramp/Kearny Villa Road intersection and at the SR 163 southbound ramps/Kearny Villa Road intersection in the horizon year (Year 2030) scenario. In addition, several of the cumulative projects such as Castlerock, Fanita Ranch, and Sycamore

Landfill and the Miramar Fuel Tank Project would add additional traffic to the local roadway system in the Site 4 area. The required roadway improvements associated with these projects along with the planned city, county, and state highway improvements, a significant traffic impact would not occur.

5.2.3 Air Quality

Emissions from area construction activities are temporary in nature and are anticipated by the APCD in their regional air quality planning. Thus, the cumulative impact of construction emissions regionally is less than significant. The long-term ROG and NO_x emissions of the Proposed Action (either the Site 2 Alternative or the Site 4 Alternative) would be less than 1 ton per year, compared with a 100-ton per year *de minimis* threshold, and would be further partially offset by the beneficial effect of avoiding longer vehicle trips to the Riverside and Los Angeles national cemeteries. Although the SDAB is a nonattainment area for O₃, the net Proposed Action emissions are considered to be less than substantial, and the contribution to a cumulative impact would be less than significant.

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CHAPTER 6.0

POSSIBLE CONFLICTS WITH FEDERAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

There are several local land use plans, policies, and controls that address and guide land use for the Proposed Action, MCAS Miramar as a whole, and surrounding areas. These documents include the *MCO P5090.2A, Chapter 12, Environmental Compliance and Protection Manual (10 July 1998)*; *MCAS Miramar Master Plan*, the *Base Exterior Architecture Plan and Base Exterior Architecture Summary*, the *Air Installation Compatible Use Zones*, *Environmental Effects of the Department of Veterans Affairs Actions*, *City of San Diego Zoning Ordinance*, and the *City of San Diego Progress Guide and General Plan*. Other documents applicable to development at the project site include the *MCAS Miramar Integrated Natural Resources Management Plan*.

The Site 2 Alternative would be compatible with all the relevant plans, policies, and controls listed above.

The majority of the Site 4 Alternative, including the Flag Assembly Area and the Committal Service Areas is within the APZ I. Public gatherings of more than 25 people per acre are incompatible with the MCAS Miramar AICUZ and are considered significant public health and safety impacts.

No other potential conflicts are anticipated between the Proposed Action and any of the local land use plans, policies, and controls that address and guide the project site. Since the site would continue to remain under federal ownership it would not be subject to the above-mentioned municipal plans. The Site 2 Alternative is consistent with the other plans, policies, and controls of MCAS Miramar.

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CHAPTER 7.0 OTHER CONSIDERATIONS

This section addresses other types of environmental effects as required by NEPA when an EIS is prepared. These sections include environmental justice; environmental health and safety risks to children; short-term uses and long-term productivity (40 CFR 1502.16); and irreversible or irretrievable commitments of resources (40 CFR 1502.16).

7.1 SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Implementation of the Proposed Action would result in impacts to the local environment that would affect both short-term uses and the maintenance and enhancement of long-term productivity. The action would commit the selected cemetery annex site for long-term cemetery usage and thereby preclude its use for alternate long-term or short-term purposes. However, the development of approximately 214 acres (87 hectares) of generally passive uses at MCAS Miramar would not significantly impact the use of natural resources on MCAS Miramar or pose a long-term risk to health and safety.

Development of a cemetery annex on MCAS Miramar would involve certain short-term activities that would provide employment opportunities for persons involved in building construction but may also create localized adverse environmental impacts. However, implementation of the construction, design, and operational mitigation measures proposed to minimize these impacts would reduce these adverse effects to less than significant levels. Although the Proposed Action would result in the loss of undeveloped land and would preclude other potential uses of the proposed cemetery annex site, this action would provide much needed burial options for veterans in the San Diego region.

7.2 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

Resources that are irreversibly or irretrievably committed to an action are those that are used on a long-term or permanent basis such as metal, wood, fuel, and other natural or cultural resources. Development of cemetery facilities on the proposed alternative sites would result in a markedly changed landscape and greater human activity on the proposed site. The commitment of land for development would be irretrievable and would preclude use of the proposed site for other purposes.

The construction of the Proposed Action would result in an irreversible commitment of building materials, fuel for construction vehicles and equipment, and other resources. The Proposed Action would commit workforce time for construction and, after project completion, maintenance. Increased energy and water consumption, as well as increased demand for services, would result from implementation of the Proposed Action. The Proposed Action would also result in increased vehicular traffic in the vicinity of the selected cemetery annex alternative. These commitments of resources are neither unusual nor unexpected, given the nature of the action, and are generally understood to be tradeoffs for the benefits of the proposal if it is implemented.

Implementation of the No Action Alternative would not result in any environmental impacts since the cemetery annex would not be built at either Site 2 or Site 4.

CHAPTER 8.0
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CHAPTER 9.0

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CHAPTER 10.0 CORRESPONDENCE

United States Government

Veterans Administration

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United States Naval Facilities Engineering Command Southwest

Cultural Resources	Danielle Page
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Public Works	Mark Rodriquez
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Marine Corps Air Station, Miramar

Natural Resource Division	Dave Boyer Coralie Cobb JoEllen Kassebaum Chad Garber
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Regulatory Agencies

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State Historic Preservation Office	Milford Wayne Donaldson, FAIA
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Local Organizations

San Diego Gas and Electric	Muffy Richards
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