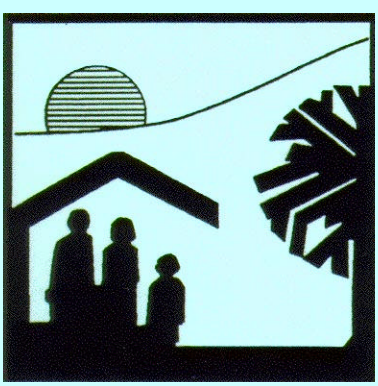
ENVIRONMENTAL IMPACT ANALYSIS PROCESS



ENVIRONMENTAL ASSESSMENT
Proposed SMC Military Family Housing
San Pedro, California
December 1996

DEPARTMENT OF THE AIR FORCE

Report Documentation Page

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Finding of No Significant Impact

Proposed SMC Military Family Housing
at White Point
San Pedro, California

Department of the Air Force
Space and Missile Systems Center
Los Angeles Air Force Base, California

26 February 1997

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

PROPOSED ACTION: The Air Force proposes to construct new housing units for military personnel assigned to Los Angeles Air Force Base (LAAFB), California. This action would ***help*** fulfill the projected deficit of military family housing (MFH) and maintain Air Force standards of living for military personnel and their families.

Four options for fulfilling the MFH deficit were evaluated by the Air Force (i.e., the Proposed Action and three alternatives). The Proposed Action is the development of MFH on the US Navy White Point housing site and an adjacent, undeveloped parcel of land. The three alternatives to the Proposed Action are: (1) demolition of a portion of the San Pedro Navy Housing on John Montgomery Drive and rebuilding MFH on this site; (2) construction of new housing units on the Fort MacArthur Upper Reservation; and (3) the No Action Alternative. All sites are located in the community of San Pedro in the City of Los Angeles. An Environmental Assessment (EA) dated December 1996 has been prepared to evaluate the environmental impacts of the Proposed Action and alternatives.

In late 1993, the Air Force originally proposed to alleviate its housing deficit by building up to 150 single-family housing units at the Fort MacArthur Upper Reservation in San Pedro. Significant adverse environmental impacts were expected to occur, and a Notice of Intent to prepare an Environmental Impact Statement (EIS) was published in the Federal Register on July 20, 1994.

However, as a result of a public scoping meeting held in August, 1994, and the 1995 Base Realignment and Closure Committee decision to close US Naval Station Long Beach, the Proposed Action was changed. In February, 1996, the Air Force proposed to build up to 96 single-family housing units on the US Navy White Point housing site, including an adjacent, Navy-owned, undeveloped, 8-acre parcel of land. Due to the change in site and decrease in potential for environmental impacts associated with the new site, the Air Force has determined that an EIS is no longer required and has prepared an EA. The Fort MacArthur Upper Reservation is included as an alternative in the EA.

Furthermore, as a result of comments in response to the publication of the Environmental Assessment and draft FONSI the Air Force, has reduced the scope of the project. The Air Force will build 71 homes situated to maximize open space on the 8-acre parcel. Other design and construction features have also been incorporated into the plans to address concerns about the aesthetics of the site.

SUMMARY OF FINDINGS:

Community Resources: The Proposed Action will not result in any significant impacts to community resources. The proposed action is consistent with current land use plans and zoning. The undeveloped 8-acre parcel of land adjacent to the existing housing area is not planned for open space, therefore, the potential loss of open space is not considered significant. The California Coastal Commission has issued a negative determination for the project. After meetings with community leaders concerned with aesthetics of the site, the Air Force has reduced the scope of the proposed action. This includes reducing the number of units and optimizing open space on the 8 acres.

Transportation: The Proposed Action will not result in significant impacts to traffic conditions at intersections or roadways.

Public Services: The Proposed Action will not result in impacts to police, fire protection, medical facilities, schools, libraries, recreational resources in the community. These resources are sufficient to accommodate the minimal increase in need for public services that would occur as a result of the Proposed Action.

Utilities: The Proposed Action results in a 23 percent increase in potable water use, an increase of 0.01 million gallons per day of wastewater, and an increase of 0.1 ton per day of solid waste. These increases, and an increase in energy consumption associated with the proposed action, can be accommodated. Therefore, no impacts to utilities would occur.

Hazardous Materials and Wastes: With the exception of household hazardous wastes, the Proposed Action will not result in the use or generation of hazardous materials or wastes. No Installation Restoration Program (IRP) impacts are anticipated. IRP sites and ongoing remediation activities are not located on the proposed housing site. During demolition activities, the Air Force will manage asbestos-containing material and lead-based paint removal in accordance with existing directives. The Proposed Action will not result in impacts from pesticides, radon, ordnance or polychlorinated biphenyls.

Soils and Geologic Resources: Construction in previously disturbed areas (within the existing housing area) will not result in impacts to soils or sediments, or impacts from faulting or seismicity. Construction practices and methods, adherence to Air Force construction requirements, and voluntary compliance with City of Los Angeles building codes, will take into consideration the previously documented potential effects of landslides (surficial slumping) and subsidence at this site. The Proposed Action will not result in significant impacts to topography and stratigraphy, or non-renewable mineral resources. Erosion, primarily during construction cut and fill activities in previously undisturbed areas will be minimized through the use of erosion control measures. Because the site is located in a seismically active area, all newly constructed building would be built to the Uniform Building Code, Seismic Zone 4, standards. Because ground disturbing activities have the potential to uncover paleontological resources (fossil remains), and the high paleontological sensitivity beneath the site, earthwork in the Altamira shale will be monitored by a paleontologist. Therefore, no significant impacts to geologic resources are anticipated.

Water Resources: The potential for transport of contaminated materials from the housing area via runoff will be prevented or minimized by proper street cleaning and stenciling of storm drains to discourage illegal dumping. The Proposed Action will not result in significant impacts to surface water, drainage or groundwater resources.

Air Quality: The proposed action meets both *de minimis* and regional significance requirements during construction and operation. Air pollutant emissions generated during construction and operation are not considered significant.

Noise: Construction of new housing could result in noise levels that temporarily exceed City of Los Angeles noise standards. Disturbances will be minimized by prohibiting noisier activities during early morning and late evening hours, by providing prior notification of construction to affected residents, and monitoring noise levels if complaints are received. The increase in noise from additional traffic resulting from the new housing is not considered significant over baseline conditions. Therefore, no significant impacts from noise are anticipated.

Biological Resources: Threatened or endangered species are not found or expected on the site. Therefore, significant impacts to biological resources would not occur.

Cultural Resources: Due to the potential to encounter buried archaeological materials during earthwork, a qualified archaeologist will monitor ground disturbing activities. Construction activities will be halted and redirected in the event archaeological materials are uncovered, and a data recovery plan prepared and coordinated with the State Historic Preservation Officer (SHPO). SHPO has concurred with the No Adverse Effect Determination for the six former military structures (Base-End Stations, referred to as concrete pillboxes in the EA) on the 8-acre parcel. Therefore, the Proposed Action will not result in significant impacts to cultural resources.

Additional information about these Base-End stations was elicited as a result of the publication of the draft FONSI. That information indicated the structures were mischaracterized both as to age and purpose in the Environmental Assessment. These are now recognized as having been important components of the harbor defense system, therefore the Air Force will incorporate several mitigation efforts in the project and consider others. The Air Force is committed to –

- Excavate and document the existing structures through the use of line drawings and photographs prior to their removal or relocation. The Fort MacArthur Military Museum Association and San Pedro Bay Historical Society will be invited to participate in this process.

- Prepare a historical sign or marker depicting the Base-End Stations, their location and purpose, and their relationship to the gun emplacements situated on the Upper Reservation. The Fort MacArthur Military Museum Association and San Pedro Bay Historical Society will be invited to participate in this process.

- Use its best efforts to remove and refurbish one representative sample of the existing Base-End Stations (to be selected in consultation with the Museum Association and Historical Society) and relocate it to an adjacent location on the White Point property which is similar in contour and elevation and overlooks the target area protected by the Fort MacArthur batteries.

- In the event an existing structure cannot be successfully relocated (because of deterioration to the original concrete or because the cost of relocation is prohibitive), SMC will construct a replica Base-End Station at an adjacent location in accordance with original plans to be furnished by the Museum Association. We will coordinate with the Association to ensure the historical accuracy in replicating the interior of the structures.

- Following relocation or replication of a Base-End Station as provided above, SMC will secure the structure to prevent vandalism but will provide the Museum Association with prearranged access to the site for purpose of conducting group tours, etc., in furtherance of its historical mission.

Socioeconomic Resources: The Proposed Action will not result in a significant increase in population, result in the need for new housing, result in any significant economic effect from loss of income from rental properties, or result in any significant change to employment conditions. In accordance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), the Proposed Action will not disproportionately impact minority or low-income populations as a result of adverse environmental, economic, social, or health impacts. Therefore, no significant impacts to socioeconomics would occur.

EVALUATION OF THE NO ACTION ALTERNATIVE: Under the no action alternative, LAAFB would not be able to fulfill its projected housing deficit. The proposed housing site, and alternative sites, would remain in their current condition. The No Action Alternative would result in no impacts to environmental resources.

MITIGATION: Best management practices for specific resources will be implemented during construction, demolition and operation to prevent or minimize potential environmental impacts, as described herein.

CUMULATIVE IMPACTS: The environmental assessment reviewed cumulative impacts that could result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions. With the exception of other construction projects in the area, there are no other known projects anticipated for the study area. Review of potential environmental impacts of this action, combined with other construction activities, concluded that no significant cumulative impacts to the local regional environment will occur.

FINDING OF NO SIGNIFICANT IMPACT: Based on the environmental assessment conducted in accordance with the requirements of the National Environmental Policy Act, the Council on Environmental Quality and Air Force Instruction 32-7061 (Environmental Impact Analysis Process), I conclude the environmental effects of the proposed construction and occupancy of new military family housing at White Point in the community of San Pedro, Los Angeles County, California, are not significant and that the preparation of an environmental impact statement is not warranted. For these reasons, a finding of no significant impact is made. An Environmental Assessment of the proposed action, dated December 1996, is on file at:

U.S. Air Force Space and Missile Systems Center
2420 Vela Way, Bldg 130, Suite 1467
Los Angeles AFB, CA 90245-4659
Attn: Maj Lonny Baker, SMC/AXFC
Phone: (310) 363-0935

APPROVED:

John L. Clay

JOHN L. CLAY, Brig Gen, USAF
Chairperson, Environmental Protection Committee
Space and Missile Systems Center
Los Angeles Air Force Base, California

26 Feb 97
(Date)

COVER SHEET

(a) Responsible Agency: United States Air Force

(b) Proposed Action: Construction of new housing for military personnel assigned to the Space and Missile Systems Center (SMC) and Los Angeles Air Force Base (LAAFB), California. This action would help reduce the projected deficit of military family housing (MFH) units for Air Force personnel and maintain Air Force standards of living for military personnel and their families.

(c) Responsible Individual:

Capt Lonny Baker
US Air Force
SMC/AXFV
2420 Vela Way, Suite 1467
Los Angeles AFB, CA 90245-4659
(310) 363-0935

(d) Designation: Environmental Assessment (EA)

(e) Abstract: The Air Force proposes to construct up to 96 single-family, detached MFH units to meet the projected housing deficit for personnel assigned to LAAFB, California. Four options for fulfilling the MFH deficit are being considered by the Air Force (i.e., the Proposed Action and three alternatives). The Proposed Action is the development of MFH on the White Point Navy housing site and an adjacent, Navy-owned, undeveloped, 8-acre parcel of land. The three alternatives to the Proposed Action are: (1) demolition of a portion of the San Pedro Navy Housing on John Montgomery Drive and rebuilding MFH on this site; (2) construction of new housing units on the Fort MacArthur Upper Reservation; and (3) the No Action Alternative. All sites are located in the community of San Pedro in the City of Los Angeles. This EA provides an evaluation of the environmental impacts of the Proposed Action and alternatives. Potential environmental impacts will be avoided through the use of best management practices during demolition, construction and occupancy of the housing area. The Proposed Action would not result in any significant environmental impacts. Mitigation measures would not be required.

(f) Comments on this EA: Agencies and individuals who wish to provide written comments may submit them to the Responsible Individual shown above. Written comments should be postmarked no later than January 22, 1997.

SUMMARY

The United States Air Force (Air Force or USAF) proposes to construct new housing for military personnel assigned to the Space and Missile Systems Center and Los Angeles Air Force Base (LAAFB), California. This Environmental Assessment (EA) has been prepared to evaluate the environmental effects of this Proposed Action and alternatives.

S.1 PURPOSE AND NEED

This action is being proposed as a means to meet the current deficit of military family housing (housing) units for Air Force personnel assigned to Space and Missile Systems Center and LAAFB, California. The objective of this action is to provide suitable housing and maintain Air Force standards of living for military personnel and their families.

A Family Housing Market Analysis conducted for the Air Force indicated a projected deficit of 107 family units at LAAFB in 1999. Current Air Force regulations allow building up to 90 percent of the documented deficit. The Air Force proposes to construct up to 96 units to help alleviate this deficit. The Proposed Action would fulfill the need for additional housing and allow the Air Force to reduce expenditures for housing allowances that often do not adequately compensate military personnel for the high cost of off-base housing in southern California. It would thereby improve living conditions for military personnel, enhance continued commitment to military careers, and improve morale.

S.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

This action requires completion of the Air Force Environmental Impact Analysis Process (EIAP) in Air Force Instruction 32-7061 (January 24, 1996) which identifies the procedural requirements for implementation of the National Environmental Policy Act (NEPA) of 1969 (Public Law [PL] 91-190, 42 United States Code [USC] 4321 through 4337) and the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR Parts 1500 through 1508). The Air Force has made a determination that an EA is required.

The purpose of the analyses included in this EA is to make the decision maker aware of the environmental consequences associated with the Proposed Action and alternatives, including the No Action Alternative. This EA contains the environmental documentation that will be used by the decision maker for selection and approval of the Proposed Action or an alternative.

S.3 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

S.3.1 Proposed Action (White Point Housing)

The Air Force proposes to construct up to 96 single, detached housing units on 24.4 acres at White Point in San Pedro, California. The Air Force would develop new housing on 16.4 acres of land that contains 78 existing Navy housing units, and also develop an adjacent, undeveloped 8 acres south of the Navy housing area. This 24.4 acres of land, controlled by the Navy, will be transferred to the Air Force. The housing site is located adjacent, and uses common access, to Pacific Heights Air Force housing on 25th Street and Western Avenue. Funding for conducting the EIAP and the housing design was appropriated by Congress in 1993.

The housing area would include up to 96 site-built, single-family homes and supporting facilities such as small playgrounds and picnic areas. A comprehensive community plan and conceptual unit plans have been developed to ensure compatibility with the surrounding neighborhood. Common areas within the housing complex would be landscaped wherever possible. A maximum total of 373 persons would reside at the site upon full occupancy of the 96 homes to be built.

The housing area would be accessed from 25th Street by using Whites Point Drive on the north side of the site. Existing roadways on the 16.4-acre housing area would be improved. New roadways would be constructed on the lower undeveloped 8-acre parcel.

S.3.2 Montgomery Navy Housing Alternative

As an alternative to the Proposed Action, the Air Force is considering demolition of up to 25 acres (or approximately 91 of 245 housing units) of the San Pedro Navy housing site on John Montgomery Avenue in north San Pedro. The housing area and occupancy would be as described in Subchapter S.3.1.

S.3.3 Fort MacArthur Upper Reservation Alternative

The Air Force is considering the development of up to 96 single, detached housing units on 19.5 of the 26.7 acres leased from the Los Angeles Unified School District (LAUSD) at the Fort MacArthur Upper Reservation in San Pedro. The housing area and occupancy would be as described in Subchapter S.3.1. The Battery Barlow-Saxton, a gun emplacement/mortar pit structure that is listed on the National Register of Historic Places, on the northern portion of the site would be left in place and fenced or otherwise secured.

S.3.4 No Action Alternative

The No Action Alternative would entail the continued use of other military family housing areas, as available, and the use of rental or leased units within the community. If the proposed White Point housing or an alternative is not developed as planned, the Air

Force would not be able to fulfill the projected housing deficit. Under the No Action Alternative, White Point and alternative sites would remain in their current condition.

S.4 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

The Air Force initiated a study of alternatives to fulfill its housing deficit early in the planning process. To identify suitable alternatives, specific considerations for the selection of reasonable alternatives were identified. To be considered reasonable, the Proposed Action or any alternative must meet each of the following three selection considerations:

(1) Up to 96 detached, single-family homes must be provided in a contiguous setting. If a new or existing site is used to provide these homes, the site must meet Air Force density limitations or local R-1/R-2 zoning codes (low-density, single-family detached units or duplexes) to accommodate up to 96 housing units, whichever is more stringent. The Air Force density limitation is 12 units (maximum) per acre for dense metropolitan areas such as southern California (USAF, 1995a).

(2) The housing must meet Air Force and Department of Defense (DOD) minimum standards of physical condition, square footage, location and other considerations.

(3) The housing deficit must be fulfilled in a practical way that is feasible from a technical and economic standpoint. US Congressional funding of this action at $15.4 million places an economic limitation on the Air Force, restricting excessive costs from the purchase of land or the renovation of existing structures. To be considered reasonable, costs for project planning, design/construction, and land/lease must not exceed $15.4 million.

It is also preferable that any new housing area be within 30 minutes travel (during peak traffic hours) of centralized Air Force family support services and facilities, to allow efficient operational logistics (including security and ridesharing), keep support and maintenance costs low, and maintain the sense of community essential to military operations and readiness. Centralized facilities are located at existing Air Force housing areas in south San Pedro. Centralization of support facilities and contiguous housing would allow the Air Force to provide a unified Air Force housing community to support military families.

S.5 ALTERNATIVES ELIMINATED FROM CONSIDERATION

The Air Force considered and eliminated five ways of alleviating the housing shortage without the construction of new military family housing units: renting existing privately owned housing; leasing existing privately owned housing; purchasing existing privately owned housing; using public assisted housing; and increasing the military housing allowance to adequately compensate for higher housing costs. The Air Force also considered and eliminated: fulfilling the housing shortage using renovation of existing, excess Navy housing; development of housing on the former Navy housing area on Taper Avenue; and expansion of the existing Air Force housing areas in San Pedro.

S.6 SUMMARY OF ENVIRONMENTAL IMPACTS

The Proposed Action and alternatives described in Subchapter S.4 were evaluated for environmental impacts in this EA. The findings of these analyses are shown on Table S-1, and are as follows:

- The Proposed Action to develop a new housing area at White Point would not result in any significant impacts.
- The Montgomery Navy Housing alternative would not result in any significant impacts.
- Fort MacArthur Upper Reservation Alternative would result in one significant impact. The increase in local residential traffic on Alma Street between Meade Drive and 25th Street (when Alma Street is used as the main access) would exceed LADOT standards, and no mitigation is available.

S.7 MITIGATION SUMMARY

Best management practices (i.e., construction techniques or methods) to prevent impacts have been identified in this analysis and are part of the project. Should other equivalent practices become available, the Air Force may implement the alternative measure(s) to achieve the same or better level of impact prevention or reduction. Since there are no significant impacts arising from the proposed action, mitigation measures for the Proposed Action and alternatives are not required. There is no mitigation available for traffic impacts from use of the Alma Street access at the Fort MacArthur Upper Reservation alternative site and a decision to implement this alternative would require completion of an Environmental Impact Statement.

S.8 UNRESOLVED ISSUES

One issue is unresolved at this time. The Air Force is currently awaiting concurrence on a Coastal Commission Negative Determination from the California Coastal Commission. No action to implement the Proposed Action will be taken until concurrence is received.

S.9 SUMMARY OF PUBLIC INFORMATION PROGRAM

S.9.1 Notice of Intent

On July 20, 1994, a Notice of Intent (NOI) to prepare a Draft EIS for a proposal to construct Military Family Housing (MFH) on the Fort MacArthur Upper Reservation was published in the Federal Register. A copy of the NOI is in Appendix B. This was the first step in the NEPA process. Following this notification, a 45-day public comment period was established. The public comment period for the NOI opened on July 20, 1994 and closed on September 6, 1994.

S.9.2 Scoping Process

The public process called scoping is used to determine the range of environmental issues to be addressed in the environmental analysis, and identify the significant issues to be analyzed in depth related to the Proposed Action and alternatives. It is the intent of this process to emphasize the significant issues and narrow the scope of the environmental document accordingly. Scoping results in identification of the range of actions, alternatives, and impacts to be considered in the environmental

The scoping process conducted in 1994 focused on the proposed development of Air Force housing on the Fort MacArthur Upper Reservation. At that time, an EIS was initiated due to scope of issues identified and analyses required. During the planning process, the Air Force made the decision to change the site of the Proposed Action to White Point. Due to the change in site and decrease in potential for environmental impacts associated with the new site, the Air Force has determined that an EIS is no longer required and has prepared an EA. The Fort MacArthur Upper Reservation is evaluated as an alternative in the EA.

S.9.3 Public Scoping Meeting

A Public Scoping Meeting for the Military Family Housing Project was held on August 2, 1994 at the Doubletree Hotel & Marina in San Pedro. At that time, as described above, the proposed action was the development of Air Force housing on the Fort MacArthur Upper Reservation. In addition to oral testimony made by the public at the meeting, a total of 46 written comment letters were received through September 6, 1994. The primary issues raised during the public scoping period are shown in Table S-2. An Administrative Record of the Public Scoping Meeting is available for review at the US Air Force Space and Missile Systems Center (SMC) Public Affairs Office at 2430 E. El Segundo Blvd., Suite 4049, Los Angeles Air Force Base.

S.9.4 Public Review Period

- The Air Force will make the EA and Draft Finding of No Significant Impact (FONSI) available for review by the public for 30 days. Comments received on the EA and Draft FONSI will be given consideration by the Air Force before the FONSI is approved and the action is implemented.

Table S-1

Summary of Potential Environmental Impacts

Environmental Category	Impact	White Point Housing (Proposed Action)	Montgomery Housing Alternative	Fort MacArthur Upper Reservation Alternative
Transportation	Use of Gaffey Street as main access results in increased traffic at Gaffey Street and 25th Street.	N/A	N/A	•
	Use of Alma Street as main access results in increased local residential traffic that exceeds LADOT criteria on Alma Street between Meade Drive (access) and 25th Street.	N/A	N/A	Δ
Hazardous Materials and Hazardous Waste Management	Contamination of soils from, or public exposure to, dust derived from lead-based paints on older buildings.	•	•	•
	Exposure to previously unknown and undocumented contaminated soils during construction.	•	N/A	•
	Public exposure to PCBs possibly present in electrical transformers.	N/A	N/A	•
Soils and Geology	Damage or loss of facilities due to expansive soils beneath the 8-acre site.	•	N/A	N/A
	Potential loss, damage or destruction of scientifically-important paleontologic resources.	•	•	•
	Erosion of slope along northern boundary of site.	N/A	•	N/A
Water Resources	Transport of oil and grease from stormwater runoff.	•	•	•
Noise	Increased noise levels along major roadways resulting from increases in vehicular traffic and background 1997 traffic exceed noise standards.	•	•	•
	Construction noise levels may temporarily exceed City of Los Angeles construction noise standards.	•	•	N/A
Cultural Resources	Loss of archaeological artifacts and historic resources from earthmoving activities.	•	•	•
Total Number of Impacts		**8**	**7**	**9**
Total Number of Significant Impacts		**0**	**0**	**1**

• This impact will be avoided through the use of best management practices during demolition, construction or occupancy of the housing area, and therefore, is not considered significant.

Δ This impact cannot be mitigated, and is considered significant.

N/A Not applicable

Table S-2

Summary of Comments Received During the Public Scoping Period

	Subject	Specific Issue(s)	Refer to EA Subchapter
1.	Alternatives	Taper Avenue Housing	2.3.8
2.	Recreational Resources	Athletic Field, Pool	3.3.6.3, 4.3.4.6
3.	Aesthetics	Appearance of Homes, Views	3.1.4, 4.1.2.2, 4.1.3.2, 4.1.4.2
4.	Traffic	Gaffey and Alma Streets	3.2, 4.2
5.	Biological Resources	Loss of Wildlife, Artificial Lighting	3.10, 4.10
6.	Open Space and Land Use	Educational, Recreational Uses	3.1, 4.1
7.	Cost Considerations	Tear down/Refurbish Taper Site	2.3.7
8.	Schools	Overcrowding	3.3.4, 4.3
9.	Human Health and Safety	Hazardous Materials School Crossings	3.5, 4.5 - -
10.	Housing Deficit	Current Deficit, Vacancy Rates	1.2

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ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
AAS	atomic absorption spectroscopy
AB	Assembly Bill
ACM	asbestos-containing material
ADT	average daily traffic
A/E	architect/engineer
AFB	Air Force Base
AFMC	Air Force Materiel Command
AFI	Air Force Instruction
AFM	Air Force Manual
AFR	Air Force Regulation
AGM	annual geometric mean
AL/OEB	Armstrong Laboratory/Bioenvironmental Engineering Division
a.m.	Ante Meridiem
ANSC	areas of no suspected contamination
AQMP	Air Quality Management Plan
ASCE	American Society of Civil Engineers
AST	aboveground storage tank
AVR	Average Vehicle Ridership
BACT	best available control technology
BAQ	Basic Allowance for Quarters
Basin	South Coast Air Basin
B.C.	before Christ
bgs	below ground surface
bldg	building
BMP	best management practices
BMS	Best Management Practices
BOD	biochemical oxygen demand
C	capacity
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-EPA	State of California Environmental Protection Agency
CARB	California Air Resources Board
CCC	California Coastal Commission
CCD	Coastal Consistency Determination
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDOG	California Division of Oil and Gas
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Cooperation, and Liability Act

ACRONYMS AND ABBREVIATIONS (Cont'd)

CEV	Environmental Management Directorate
CEVC	Environmental Management Directorate, Compliance Directorate
cf	cubic foot
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action Navy
CMA	Critical Movement Analysis
CMP	Coastal Management Plan
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
COD	chemical oxygen demand
COE	U.S. Army Corps of Engineers
Congress	U.S. Congress
CRWQCB	California Regional Water Quality Control Board
CSDLAC	County Sanitation District of Los Angeles County
Cu	copper
cy	cubic yards
dBA	A-weighted decibel sound level
dB	decibels
DLA	Defense Logistics Agency
DNL	day-night average sound level
DOD	Department of Defense
DOPAA	Description of Proposed Action and Alternatives
DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
EBS	Environmental Baseline Survey
EIAP	Environmental Impact Analysis Process
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EP	Environmental Perspectives, Inc.
EPA	United States Environmental Protection Agency
ES	Engineering-Science, Inc.
ESE	Environmental Science and Engineering
FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FFA	Federal Facility Agreement
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, Rodenticide Act
FIP	Federal Implementation Plan
FONSI	Finding of No Significant Impacts
FR	Federal Register
g	fraction of the acceleration of gravity

ACRONYMS AND ABBREVIATIONS (Cont'd)

gpd	gallons per day
GSP	General Stormwater Permit
HBJ	Harcourt Brace Jovanovich, Inc.
HQ	Headquarters
Hr	hour
HUD	United States Department of Housing and Urban Development
I	Interstate
ITE	Institute of Transportation Engineers
IRP	Installation Restoration Program
JWPCP	Joint Water Pollution Control Plant
kWh	kilowatt hours
LAAFB	Los Angeles Air Force Base
LADOT	City of Los Angeles Department of Transportation
LADPW	City of Los Angeles Department of Public Works
LADRP	City of Los Angeles Department of Recreation and Parks
LADWP	City of Los Angeles Department of Water and Power
LAFD	City of Los Angeles Fire Department
LAHD	Los Angeles Harbor Department
LAMC	City of Los Angeles Municipal Code
LAPD	City of Los Angeles Police Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LAUSD	Los Angeles Unified School District
lb	pound(s)
lb/hr	pound(s) per hour
lb/day	pound(s) per day
LCP	Local Coastal Program
L_{dn}	day-night average sound level
L_{eq}	energy-equivalent sound level (A-weighted)
L_{max}	maximum noise level
LOS	level(s)-of-service
LUP	land use plan
m	meter
M	magnitude
MAAQI	Mobile Assessment for Air Quality Impacts (SCAQMD) computer program
mcf	million cubic feet
MCL	maximum contaminant levels
MCLS	Metropolitan Cooperated Library System
MFH	military family housing
mgd	million gallons per day
mg/l	milligrams per liter
MLLW	mean lower low water
MP	Monitoring Plan

ACRONYMS AND ABBREVIATIONS (Cont'd)

mph	miles per hour
MRZ	mineral resource zones
MSL	mean sea level
MTA	Los Angeles County Metropolitan Transportation Authority
Metropolitan	Metropolitan Water District of Southern California
MWR	Morale, Welfare and Recreation
NA	not applicable
NAC	noise abatement criteria
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NLR	noise level reduction
NO_2	nitrogen dioxide
$NO_2 + NO_3$ (N)	nitrite-nitrate as nitrogen
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NURP	Nationwide Urban Runoff Program
OSHA	Occupational Safety and Health Administration
O3	ozone
P	phosphorus
PA	Preliminary Assessment
PA/SI	Preliminary Assessment/Site Investigation
Parsons ES	Parsons Engineering Science, Inc.
Pb	lead
PCB	polychlorinated biphenyl
pCi/l	picocuries per liter
P.E.	Professional Engineer
Pk	peak
PL	Public Law
p.m.	Post Meridiem
PM_{10}	particulate matter less than 10 microns in diameter
POL	petroleum, oil and lubricant
POTW	publicly owned treatment works
ppm	parts per million
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation(s)
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROG	reactive organic gases

ACRONYMS AND ABBREVIATIONS (Cont'd)

ROI	region of influence
ROM	rough order magnitude
RSE	Removal Site Evaluation
SAF/MII	Deputy Assistant Secretary of the Air Force (Installations)
SAMSO	Space and Missile Systems Organization
SARA	Superfund Amendments and Reauthorization Acts
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SCG	Southern California Gas Company
SEL	Sound Exposure Level
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMC	Space and Missile Systems Center
SO2	sulfur dioxide
SOx	sulfur oxides
Sol.	soluble
SR	State Route
STLC	Soluble Threshold Limit Concentrations
SUD	Special Use District
SVOCs	semivolatile organic compounds
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TITP	Terminal Island Treatment Plant
TKN	total Kjeldahl nitrogen
TSCA	Toxic Substances Control Act
TRPH	total recoverable petroleum hydrocarbons
TSS	total suspended solids
UCLA	University of California Los Angeles
μg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter of air
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UV	ultraviolet
V	volume
V/C	volume-to-capacity ratio
VHA	Variable Housing Allowance
VOC	volatile organic compound
WDD	Western Development Division

ACRONYMS AND ABBREVIATIONS (Cont'd)

WEF	Water Environment Federation
Zn	zinc
XRF	x-ray fluorescensce

CHAPTER 1

PURPOSE OF AND NEED FOR THE ACTION

CHAPTER 1

PURPOSE OF AND NEED FOR THE ACTION

The United States (US) Air Force (Air Force or USAF) proposes to construct new housing for military personnel assigned the Space and Missile Systems Center (SMC) and Los Angeles Air Force Base (LAAFB), California. This Environmental Assessment (EA) has been prepared to evaluate the environmental effects of the proposed action and alternatives.

1.1 PURPOSE OF AND NEED FOR THE ACTION

This action is being proposed as a means to meet the current deficit of military family housing (MFH) units for Air Force personnel assigned to LAAFB, California. The objective of this action is to maintain Air Force standards of living for military personnel and their families.

A Family Housing Market Analysis conducted for the Air Force indicated a 1994 effective family housing deficit of 116 units, and a projected effective family housing deficit of 107 units for the year 1999, for military personnel assigned to LAAFB (USAF, 1994d). This analysis was based on the number of permanently assigned Air Force personnel with families, in comparison to the number of families suitably housed in MFH and leased units which meet Air Force criteria, including rent cost/housing allowance. The effective housing deficit is the number of families that are unsuitably housed in the community, a measure of housing requirements and housing assets. Air Force Instruction (AFI) 32-6002 allows construction of no more than 90 percent of the projected housing deficit. The Air Force has determined that construction of up to 96 units (90 percent of 107) would fulfill the need for additional housing and allow the Air Force to reduce expenditures for housing allowances that often do not adequately compensate military personnel for the high cost of off-base housing in southern California. It would thereby improve living conditions for military personnel, enhance continued commitment to military careers, and improve morale. The Air Force is also interested in maintaining cohesion of military forces that is enhanced by shared living conditions of personnel and common concerns in military service.

1.2 LOCATION OF THE PROPOSED ACTION

The Proposed Action to develop new MFH would be located in the community of San Pedro, in the City of Los Angeles County, California. The site is approximately 30 miles south of downtown Los Angeles and 20 miles southeast of Los Angeles Air Force Base.

1.3 DECISION TO BE MADE AND DECISIONMAKER

The decision to be made by the SMC Environmental Protection Committee (EPC) is whether to:

- Construct MFH at the White Point Navy housing site (Proposed Action);
- Construct MFH at the Montgomery Navy alternative housing site;
- Construct MFH at the Fort MacArthur Upper Reservation alternative housing site; or
- Not construct MFH (No-Action Alternative).

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

The National Environmental Policy Act (NEPA) of 1969 (Public Law [PL] 91-190, 42 United States Code [USC] 4321-4347) is the nation's charter for protecting the environment and establishes the nation's environmental goals and policies. It requires federal agencies to take into consideration the environmental consequences of proposed actions in the decision-making process. Regulations developed by the President's Council on Environmental Quality (CEQ) implement NEPA (40 CFR 1500-1508, 1978).

This action requires completion of the Air Force Environmental Impact Analysis Process (EIAP). The EIAP is contained in Air Force Instruction 32-7061 (January 24, 1996) which identifies the procedural requirements for implementation of NEPA and CEQ Regulations. The Air Force has made a determination that an EA is required. An Air Force Form AF-813 (Request for Environmental Impact Analysis Process) has been prepared and is on file at SMC's Environmental Management Branch.

This EA identifies, describes and evaluates the potential environmental impacts that could result from the proposed action, as well as possible cumulative impacts from other actions planned for the site. The EA identifies environmental permits relevant to the proposed action. As appropriate, the EA describes, in terms of a regional overview or a site specific description, the affected environment and environmental consequences of the action. Finally, the EA identifies mitigation measures to prevent or minimize environmental impacts.

The biophysical resources identified for this study are: local community (community setting, plans and zoning, land use and aesthetics); transportation; public services; utilities; hazardous materials and hazardous waste management; soils and geology; water resources; air quality; noise; biological resources; cultural resources; and socioeconomics.

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued by President Clinton on February 11, 1994. In the EO, the President instructed each federal agency to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Based on analysis conducted for this EA, it was determined that activities associated with the proposed action or alternatives would not have adverse effects at any location for the following resources: community setting; land use; air quality; utilities; noise; transportation; biological resources; water resources; geological resources; cultural resources; and hazardous materials and wastes. Having determined that neither the proposed action or alternatives would have any adverse effect, no disproportionately high and adverse impacts upon minority and low-income populations are anticipated. Therefore, additional environmental justice analyses were not conducted. If selected, the proposed action should have a minor positive effect on the community by creating more jobs in the services and construction industries.

Throughout the EIAP the Air Force emphasized public involvement. To disseminate project information to the public and solicit public participation, a Notice of Intent for the original Proposed Action (now the alternate: construct MFH at the Fort MacArthur Upper Reservation) was placed in the Federal Register, public information releases describing the project were mailed to the media, informational letters were mailed to government agencies, and a public scoping meeting was conducted. The meeting consisted of an introductory informational presentation by the Air Force that explained the EIAP and detailed the project relative to area in which the meeting was held. Each person attending the meeting was given the opportunity to make a statement during the second portion of the meeting. Additionally, each person had the opportunity to submit a written statement concerning the project. Likewise, individuals who read the advertisements announcing the meetings and did not attend the meeting were given an address to which they could submit written comments. These comments, along with those written and oral statements submitted during and after the meetings, were included in an Administrative Record summarizing the meeting. The Administrative Record also contains a transcript of the proceedings of the meeting. The Air Force has considered comments received during the public scoping process. As a result of a decision to change the proposed action to the White Point Navy site and consequent avoidance of some potentially significant impacts which could have required processing of an Environmental Impact Statement, it was determined an EA was adequate. The Air Force will consider public comments that may be received in the 30 days after the EA and Draft Finding of No Significant Impact (FONSI) is released.

1.5 REGULATORY REVIEW AND PERMIT REQUIREMENTS

The environmental regulatory and permit requirements that would be applicable to the proposed MFH are summarized in this subchapter and further described in Chapters 3 and 4. Regulatory requirements for five categories are applicable: air quality, water quality, coastal resources, hazardous waste, and national historic preservation/cultural resources. Each of these subchapters within Chapter 3 presents an overview and background of the regulatory processes and requirements, while specific permit requirements are identified within Chapter 4. Specific regulatory and permit requirements are identified in Table 1.5-1.

Table 1.5-1

Proposed Air Force MFH Project Potential Permits, Approvals and Administering Agencies

MFH Item or Activity	Permit or Approval	Administering Agency
Air Quality		
Project Approval	Conformity Determination	US Environmental Protection Agency
Water Quality		
Pre-construction	National Pollutant Discharge Elimination System (NPDES) General Stormwater Permit, including a Stormwater Pollution Prevention Plan (SWPPP) and Mitigation Plan (MP)	California Regional Water Quality Control Board (Los Angeles Region)
Coastal Resources		
Pre-construction and Operations	Coastal Consistency Determination	California Coastal Commission
Hazardous Waste		
Construction	Rule 1403, Asbestos Emissions from Demolition and Renovation Activities	South Coast Air Quality Management District
National Historic Preservation/Cultural Resources		
Pre-construction	Section 106 Consultation	State Historic Preservation Officer

1.6 ORGANIZATION OF THE EA

This EA has been organized into eight chapters and supporting appendices. Chapter 2 provides a detailed description of the proposed action and alternatives. This chapter also provides a review of applicable regulatory requirements, permits and approvals required by the proposed action and alternatives, and a summary of environmental impacts. Chapter 3 characterizes the existing environment and surrounding community. Chapter 4 is an evaluation of the potential environmental consequences on the environment and community that could result from implementation of the proposed action and alternatives. Chapters 5 presents an evaluation of the long-term implications of the proposed action and alternatives, and discusses cumulative impacts, unavoidable adverse impacts, and irreversible and irretrievable commitments of resources. Chapters 6 through 8 provide supporting information used to develop the EA: references, persons and agencies consulted during preparation of the EA, and a list of EA preparers. Appendices with additional supporting documentation are also included as part of this document.

1.7 RELATED ENVIRONMENTAL DOCUMENTS

Several similar but independent projects have been previously evaluated in environmental documents. The Air Force has developed three other MFH complexes in the San Pedro area that were subject to environmental analysis: the Fort MacArthur Middle Reservation, Pacific Crest and Pacific Heights housing areas. In addition, the Los Angeles Unified School District (LAUSD) has proposed the development of the Fort MacArthur Educational Complex at the Fort MacArthur Upper Reservation as part of its Master Plan of Facilities. These documents have been used herein as sources of information, as appropriate. Each of these previous documents are summarized herein:

(1) <u>Environmental Assessment for Proposed Space Division Housing at Fort MacArthur, California (January 1981).</u> This document evaluated the proposed construction of up to 300 MFH units on approximately 96 acres of the Fort MacArthur Middle Reservation in San Pedro. Alternatives to the proposed action included: the development of housing on approximately 120 acres of the White Point area at Western Avenue and Paseo Del Mar (formerly an Army NIKE missile site); and development of housing on approximately 20 acres of the Los Alamitos Armed Forces Reserve Center in Orange County. A Finding of No Significant Impacts (FONSI) was made for the proposed action to develop housing at Fort MacArthur Middle Reservation (USAF, 1981). In 1983, the Air Force prepared a Supplement to this 1981 Environmental Assessment (EA) which evaluated the proposed construction of an additional 100 MFH units (USAF, 1983).

(2) <u>Environmental Assessment for Space Division Proposed Housing White Point, San Pedro (July 1984).</u> This EA evaluated the proposed construction of up to 170 MFH units on approximately 50 acres of the area known as White Point (located at Western Avenue and Paseo Del Mar) in San Pedro. This area was proposed for a City of Los Angeles park, which was not funded, and subsequently proposed as a State park. The action was found to result in significant impacts and an EIS was initiated (USAF, 1984).

(3) <u>Draft Environmental Impact Statement Air Force Space Division Housing Project, San Pedro (April 1986).</u> This Draft EIS evaluated the proposed construction of 170 MFH units on approximately 40 acres southeast portion of White Point in San Pedro. Alternatives to the proposed action included housing sites on City property at Bogdanovich Park and the Fort MacArthur Upper Reservation (USAF, 1986a).

(4) <u>Final Environmental Impact Statement Air Force Space Division Housing Project, San Pedro (July 1986).</u> The Air Force made the decision to implement the preferred alternative which was combined use of 14 acres in the northwest portion of White Point (known today as Pacific Heights Air Force housing area) and all of Bogdanovich Park (known today as the Pacific Heights Air Force housing area) (USAF, 1986b).

(5) Supplemental Environmental Assessment US Air Force Proposed Space Systems Division Housing Fort MacArthur (June 1991). A supplement to the 1981 Middle Fort MacArthur EA was prepared by the Air Force which evaluated the proposed construction of an additional 37 MFH units (USAF, 1991a). A FONSI on this proposed action was made.

(6) Final Environmental Impact Report - Los Angeles Unified School District Fort MacArthur Educational Complex at the Fort MacArthur Upper Reservation (August 1989). This Environmental Impact Report (EP, 1989), prepared in accordance with California Environmental Quality Act requirements, evaluated the potential environmental impacts from the proposed LAUSD Fort MacArthur Educational Complex on the Fort MacArthur Upper Reservation, which is part of their Master Plan of Facilities. The complex would include educational centers, a marine animal care facility, a marine studies consortium and a marine studies center. The program would include continued operation of the LAUSD facilities on the site in addition to upgrading of existing structures.

CHAPTER 2

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

CHAPTER 2

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The Air Force proposes to construct up to 96 single-family, detached military housing (MFH) units to meet the current housing deficit for personnel assigned to the Space and Missile Systems Center and LAAFB, California. Four options for fulfilling the housing deficit are being considered by the Air Force (i.e., the proposed action and three alternatives). The proposed action is the demolition of existing Navy housing units and development of housing on the White Point housing site in the community of San Pedro. The three alternatives to the proposed action are: (1) demolition of a portion of the San Pedro Navy Housing on John Montgomery Drive and rebuilding MFH on this site; (2) construction of MFH on the Fort MacArthur Upper Reservation; and (3) the No Action Alternative. All sites are located in the community of San Pedro, in the City of Los Angeles.

This chapter will describe the selection considerations that were used to identify and evaluate alternatives, the alternatives that have been eliminated from consideration by the Air Force, the proposed action and the three alternatives evaluated in detail in the EA.

2.1 BACKGROUND

The principal mission of LAAFB began in 1964, when Brigadier General Bernard A. Schriever was directed to open the Western Development Division (WDD) of the Air Force. This eventually led to Los Angeles becoming the center for development and acquisition of space systems for the Air Force.

When WDD first opened, military family housing was not available in the Los Angeles area. Personnel assigned to LAAFB were required to obtain housing in the community. Because the value of real estate and housing rental costs in southern California was escalating in the late 1970s, General Richard Henry, Commander of WDD, (renamed Space and Missile Systems Organization [SAMSO]), initiated a program to provide permanent military family housing for LAAFB personnel.

By 1979, the US Army (Army) vacated the Fort MacArthur Military Reservation in San Pedro. This Army real estate was apportioned into three parcels: (1) White Point, designated as park land; (2) Fort MacArthur Upper Reservation, divided between the City of Los Angeles and the Los Angeles Unified School District (LAUSD); and, (3) Middle Fort MacArthur, deeded to the Air Force. The Air Force constructed 370 housing units on Middle Fort MacArthur during the period from 1980 to 1985. Between 1985 and 1989, an additional 170 single-family housing units were constructed on the White Point and Bogdanovich Park properties. These two housing areas are known today as Pacific Heights and Pacific Crest, respectively.

Middle Fort MacArthur, Pacific Crest and Pacific Heights housing areas are in the southeastern portion of the Palos Verdes Peninsula, approximately 20 miles southeast of LAAFB (approximately 25 miles commuting distance), as shown on Figure 2.1-1. Table 2.1-1 identifies Air Force housing areas for LAAFB personnel.

Table 2.1-1

Air Force Housing in San Pedro

Housing Area	Area (acres)[a]	Quantity[b]
Middle Fort MacArthur	93.00[c]	404 units[d]
Pacific Crest	22.09	91 units
Pacific Heights	12.68	79 units
Total		**574 units**

[a] Acreage of grounds at each location
[b] Number of housing units at each location
[c] Also includes office/support facilities
[d] Source: Air Force, 1990a

From 1988 to 1991, a housing deficit of approximately 500 military family housing units was documented for LAAFB. The number of complaints from military members over quality of life issues (such as high housing costs and high cost of living) in southern California increased during this period. To fulfill the housing deficit, funding for conducting the EIAP and the housing design was provided to the Air Force by Congress in 1993.

2.2 HISTORY OF THE FORMULATION OF ALTERNATIVES

The Air Force studied alternatives to fulfill its housing deficit early in the planning process. To identify suitable alternatives, specific considerations for the selection of reasonable alternatives were identified. To be considered reasonable, the proposed action or any alternative must meet each of the following three selection considerations:

(1) Up to 96 detached, 3- and 4-bedroom single-family homes must be provided. All units must be contiguous for management and security reasons. If a new or existing site is used to provide these homes, the site must meet Air Force density limitations or local R-1/R-2 zoning codes (low-density, single-family detached units or duplexes), whichever is more stringent. The Air Force density limitation is 12 units (maximum) per acre for dense metropolitan areas such as southern California (USAF, 1995a).

Figure 2.1-1

Regional Vicinity Map of the Los Angeles Air Force Base and Fort MacArthur Area

(2) The MFH must meet Air Force and Department of Defense (DOD) minimum standards of physical condition, square footage, location and other considerations.

(3) The housing deficit must be fulfilled in a practical way that is feasible from a technical and economic standpoint. US Congressional funding of this action at a project cost of $15.4 million places an economic limitation on the Air Force, restricting excessive costs from the purchase of land or the renovation of existing structures. To be considered reasonable, costs for project planning, design/construction, and land/lease must not exceed $15.4 million.

It is also preferable that any new housing area be within 30 minutes travel (during peak traffic hours) of centralized Air Force family support services and facilities, to allow efficient operational logistics (including security and ridesharing), keep support and maintenance costs low, and maintain the sense of community essential to military operations and readiness. Centralized facilities are located at existing Air Force housing areas in south San Pedro. Centralization of support facilities and contiguous housing would allow the Air Force to provide a unified Air Force housing community to support military families.

2.3 ALTERNATIVES ELIMINATED FROM CONSIDERATION

To alleviate the housing shortage problem for LAAFB, the Air Force identified non-construction, renovation, and construction alternatives:

- The Air Force considered five ways of alleviating the housing shortage without the construction of new MFH units: renting existing, privately-owned housing; leasing existing, privately-owned housing; purchasing existing, privately-owned housing; using public assisted housing; and increasing the military housing allowance to adequately compensate for higher housing costs.
- One way of fulfilling the housing shortage using renovation was to renovate existing, excess DoD housing.
- One alternative involving new construction was expansion of existing Air Force housing areas.

Each of these alternatives are described and evaluated against the selection considerations identified previously.

2.3.1 Renting of Existing Housing in the Community

Renting existing, privately-owned housing units in the community was considered by the Air Force as a means of fulfilling its housing deficit. To allow and encourage assigned personnel to identify rental units within individual housing allowance limitations represents a continuation of the current practice. The use of community housing is an available option for military personnel. It is the only option available for LAAFB personnel when base housing at any of the three existing Air Force housing areas are fully occupied. Given the high cost of living in the Los Angeles area, this option is often cost prohibitive to many families, and leads to financial hardship. In addition, setting up a family household in a new town is often difficult in comparison to the opportunity of residing in a consolidated military family community with common amenities and the support of other military families in the same neighborhood. The continuation of renting private housing (or engaging in lease agreements) by military personnel is evaluated under the No Action Alternative (see Subchapter 2.8).

2.3.2 Leasing of Existing Housing by the Air Force

The Air Force and LAAFB previously had a leased housing program whereby the government negotiated lease agreements with individual owners and committed to providing a high occupancy level for the lease period. Lease amounts were set by the US Congress (Congress), and all leased units were required to meet the housing standards set forth by the DoD. As housing costs increased in the Los Angeles area, the Air Force found it more difficult to find homeowners who would accept lease agreements for the amount that could be authorized by the government. In 1980, Congress eliminated the leased housing program due to its cost, inflexibility of leases and maintenance problems. The leased housing program was phased out beginning in Fiscal Year 1980. The last year of funding for the program was Fiscal Year 1984 (USAF, 1986a). In place of the program, Congress introduced the Variable Housing Allowance (VHA) which was intended to compensate personnel for higher housing costs in areas such as Los Angeles. The Air Force (Headquarters Air Force Materiel Command) manages approximately 60 leases for LAAFB military personnel and their families. These leases fall under housing regulation 10 USC 2828 which provides short-range and special situation leases for areas with a verified housing deficit. This is the only avenue with which the Air Force will enter into leases and is to be used only on a temporary basis. Leasing of additional privately-owned housing by the Air Force, therefore, is not an available option. Leasing of units by individual military personnel is an ongoing activity as described in Subchapter 2.3.1.

2.3.3 Purchasing of Existing Housing by the Air Force

The Air Force considered the purchase of existing housing units to fulfill its housing shortage. The Air Force has found that the required number of contiguous housing units that meet Air Force standards do not exist in the immediate area. Recent investigations of existing housing units on several sites in the City of Hawthorne have found that sufficient contiguous units are not available; access to Air Force community facilities would also remain a problem. For the reasons described above, the purchase of existing housing was eliminated from consideration.

2.3.4 Public Assisted Housing

The Air Force considered using public assisted (i.e., government subsidized) housing in the community as a means of fulfilling its housing deficit. Generally, when public assisted housing is available in a community, it is not readily available to most military personnel because of the eligibility requirements and extensive waiting lists

(USAF, 1993). To be eligible for public assisted housing, annual gross household income for a family of four must be $24,250 (low income) (USAF, 1993). This alternative was eliminated from further consideration because Air Force personnel would not meet the eligibility requirements.

2.3.5 Increasing the Military Housing Allowance

Military living allowances are approved by Congress and allocated in the Federal budget. The living allowance for each area is established based on economic studies of local cost factors. The typical living allowance for an officer assigned to LAAFB is composed of the Basic Allowance for Quarters (BAQ), which is approximately $500, and the VHA, which is also approximately $500. The VHA for southern California is the highest allowance in the United States and cannot be increased without Congressional approval. There are no plans to increase the VHA, therefore, this alternative was eliminated from consideration.

2.3.6 Use of Excess DoD Housing

The Air Force studied the alternative of acquiring and using housing areas declared excess to DoD. The Air Force gave extensive consideration to the use in "as is" condition of three US Navy (Navy) housing areas: San Pedro Navy Housing on John Montgomery Drive in north San Pedro, Palos Verdes housing on Palos Verdes Drive North in north San Pedro, and White Point Navy Housing in south San Pedro. This alternative assumes that Navy or other DoD occupants of the housing areas would vacate, and that the housing area would become available to the Air Force. The Air Force families would move into units "as is" without renovation.

Use of the Montgomery and White Point housing areas in an "as is" condition was eliminated because it was found that these units do not meet current building codes, due to their age and the presence of asbestos floor tile and lead-based paint. The Palos Verdes housing area consists of approximately 300 2-bedroom multi-family units. The Air Force found that Palos Verdes housing did not meet the requirements for detached, 3- and 4-bedroom single-family units, and therefore, was eliminated from consideration.

2.3.7 Renovation of Navy Housing

The Air Force studied the alternative of renovating the three Navy housing areas discussed in Subchapter 2.3.6. To meet Air Force housing needs, conversion of the existing multi-family structures at these sites would require extensive renovation to meet the Air Force requirements for living space and amenities.

Independent cost estimates were developed for the Air Force for renovation of Navy housing. In accordance with AFI 32-6002, the Air Force may substitute a replacement project when an authorized improvement project's cost exceeds 70 percent of the cost to replace the housing and an economic analysis further shows the improvement project is no longer the most cost effective alternative. The renovation of Montgomery, Palos Verdes and White Point housing areas from multi-family structures into single-family units was found to exceed 70 percent of new housing construction costs. In addition, renovation of Palos Verdes housing into larger 3- and 4-bedroom units would not be possible due to space limitations. For this reason, the renovation of Montgomery, Palos Verdes and White Point housing was eliminated from consideration. Demolition and construction of new MFH on the Palos Verdes housing area site was not considered prudent because this housing is relatively new (built in 1989).

2.3.8 Taper Avenue Navy Housing

Built in the 1960s, the 140-unit Taper Avenue housing area located adjacent to Montgomery housing in north San Pedro was vacated by the Navy in the summer of 1994 after closure of the Long Beach Naval Station. A Reuse Plan for the former Taper Avenue housing area has been approved by the US Department of Housing and Urban Development. The plan includes a proposal for a new high school. Therefore, this site is no longer available and eliminated from consideration.

2.3.9 Expansion of Existing Air Force Housing Areas in San Pedro

The Air Force evaluated existing housing areas at Middle Fort MacArthur, Pacific Heights and Pacific Crest for potential expansion. None of these sites have sufficient buildable area remaining to add the required number of homes within Federal property boundaries. The Air Force also found that the combined available space at all three existing housing locations is not enough to accommodate the 96 new housing units because the minimum required site size would not be met. This alternative was eliminated from further consideration.

2.4 DESCRIPTION OF THE PROPOSED ACTION

The Air Force is proposing to develop the 16.4-acre White Point Navy housing area and an adjacent, Navy-owned, undeveloped 8-acre parcel into Air Force military family housing. The Air Force would demolish existing Navy housing and construct new Air Force housing on the existing housing site and the adjacent 8 acres south of the housing area. Current funding limits the number of units to be constructed.

2.4.1 Location and Setting

The proposed housing site is located along near the intersection of Western Avenue and 25th Street in south San Pedro, within the City of Los Angeles, as shown on Figure 2.4-1. White Point housing is approximately 30 miles south of downtown Los Angeles and approximately 20 miles southeast of LAAFB.

The existing White Point Navy housing area is 16.4 acres in size and consists of 78 partially occupied (36 three-bedroom and 42 four-bedroom) one- and two-story, single- and multi-family, attached and detached dwelling units (see Figure 2.4-2). Some units have attached carports. Playgrounds/recreational areas are located within the complex. Housing units are developed in the International architectural style. The

Figure 2.4-1

White Point Navy Housing Vicinity Map

adjacent 8 acres south of the existing housing are undeveloped with the exception of six abandoned military structures (concrete "pillboxes").

The White Point housing site is bounded by 25th Street and commercial land uses to the north, private residential areas to the east, Paseo Del Mar and the Pacific Ocean to the south, and Western Avenue with residential areas and commercial uses to the west. Approximately 0.5 mile south of the entrance to the White Point housing area at Western Avenue and 25th Street is Royal Palms State Beach, White Point Beach and other beach front recreational and commercial uses.

2.4.2 Background of White Point Navy Housing

Several US Navy housing areas support the Long Beach Naval Complex, which is comprised of the former Long Beach Naval Station, the Long Beach Naval Shipyard and other facilities. These housing areas are the San Pedro Housing (which includes vacant housing on Taper Avenue and partially occupied housing on John Montgomery Drive), Palos Verdes Housing, White Point Housing, Savannah and Cabrillo Housing in Long Beach, and Los Alamitos Housing (in the City of Los Alamitos). In September 1994, the Long Beach Naval Station was closed under the Defense Base Closure and Realignment Act of 1990. This has resulted in the availability of some Navy housing facilities.

2.4.3 Construction Program

The Air Force would demolish all 78 existing units and construct up to 96 units on the proposed site. Site preparation activities would include: asbestos studies and abatement, proper disposal of lead-based paint debris, demolition of existing dwelling units on-site, and clearing and grading. Infrastructure improvements would include: replacement of lighting; placement of electrical transmission lines underground; installation of domestic water supply lines and fire hydrants using tie-ins; roadway widening with new curbs, gutters and sidewalks; construction of new roads (on the 8-acre parcel only) and new sewer line tie-ins (on the 8-acre parcel only). The existing sewer, storm drainage and fire water systems will remain. Construction of the housing area would be conducted in accordance with AFI 32-6002 (Family Housing Planning, Programming, Design, and Construction) and the Air Force Family Housing Guide. Site preparation activities and demolition of existing housing units would occur over 6 months. The total construction period would require approximately 20 months. The preliminary design and construction schedule is shown on Figure 2.4-3.

2.4.4 Description of the Housing Area

The proposed new Air Force housing would include site-built single-family homes with supporting facilities and structures such as garages. A comprehensive community plan and conceptual unit plans have been developed to address and ensure compatibility with the surrounding neighborhood. The architectural theme of these homes would be Victorian and Craftsman style. Common areas within the housing complex would be landscaped wherever possible. The Air Force has made efforts to

Figure 2.4-2

Existing White Point Navy Housing Area and Vacant 8 Acres

Figure 2.4-3

Preliminary Design and Construction Schedule

incorporate public input on design elements, such as architectural treatments and landscaping. Housing designs were made available to the public for review and comment. Public contribution to the development of visual characteristics of the site has served to enhance the continuity of existing development in the area.

It is estimated that a maximum of 373 persons would be residing at the site in the 96 homes to be developed at full buildout and with full occupancy. This number is based on an average family size of 1.88 children per family, and both spouses in residence.

The only access to the White Point housing area would continue to be from 25th Street via Whites Point Drive from the north (Figure 2.4-2). A guard would continue to be posted at the entrance, which is located just east of the intersection of 25th Street and Western Avenue.

The White Point housing would be maintained by the Air Force, the responsible party for upkeep of all roadways and facilities under its jurisdiction. Electricity, gas, water and wastewater services would be provided by the appropriate local utility company on a reimbursable basis. Solid waste disposal services would be provided by local haulers on a reimbursable basis.

2.5 MONTGOMERY NAVY HOUSING ALTERNATIVE

The Air Force is considering development of the Montgomery Navy housing area into Air Force housing. Under this alternative, the Air Force would demolish existing Navy housing and construct new Air Force housing on-site.

2.5.1 Location and Setting

The Montgomery housing area is located along John Montgomery Drive in the community of San Pedro, City of Los Angeles, as shown on Figure 2.5-1. The site is approximately 19 miles south of downtown Los Angeles and 19 miles southwest of LAAFB.

The Montgomery housing area is approximately 68 acres in size and consists of: 245 partially occupied (208 three-bedroom and 37 four-bedroom) single-family attached dwelling units; a Morale, Welfare and Recreation (MWR) Community Center; a Navy Exchange/San Pedro Mini Mart; and playgrounds/recreational areas. The existing housing area is shown on Figure 2.5-2. Housing units are developed in the Capeheart architectural style.

The Montgomery housing area is bounded by Defense Logistics Agency (DLA) property to the north, the unoccupied Taper Avenue site and private residential units to the east and south, and Western Avenue to the west. Four tank farms are located approximately 0.5 mile east and approximately 0.1 mile north of the Montgomery housing area, as measured to the border of the tank farm property. The tank farms are owned by Unocal, Petrolane, GATX, and DLA. Green Hills Memorial Park (cemetery) is

Figure 2.5-1

Montgomery Housing Site

Figure 2.5-2

Montgomery Navy Housing Layout

located on Western Avenue at the John Montgomery Drive entrance to the San Pedro housing area.

2.5.2 Background of Montgomery Navy Housing

As discussed in Subchapter 2.4.2, Montgomery Navy housing is part of housing areas that support the Long Beach Naval Shipyard. Montgomery housing was originally constructed in 1965 with addition of 43 units in 1990. The complex consists of one-story single-family and duplex units.

2.5.3 Construction Program

The Air Force would demolish approximately 25 of the 68 acres (or 91 of the 245 units) and construct up to 96 new housing units. The preliminary design and construction schedule would be the same shown on Figure 2.4-3 (for the Proposed Action).

Site preparation activities would include: asbestos studies and abatement, proper disposal of lead-based paint debris, demolition of existing dwelling units on-site, and clearing and grading. Infrastructure improvements would include replacement of utilities and lighting for the housing area because existing infrastructure is obsolete. Construction of the housing area would be conducted in accordance with AFI 32-6002 and the Air Force Family Housing Guide. Site preparation activities and demolition of existing structures would occur over a period of 6 months. The total construction period would require approximately 20 months.

2.5.4 Description of the Housing Area

The proposed new Air Force MFH and occupancy projection would be the same as described in Subchapter 2.4.4.

The Montgomery housing area is encircled by John Montgomery Drive to the north, east, and south, and by Western Avenue to the west. John Montgomery Drive is u-shaped, open to the west, and provides two access points where it intersects Western Avenue. Samuel Dupont Avenue runs parallel to Western Avenue and intersects John Montgomery Drive on the north and south. John Sloat Drive and Robert Stockton Place trisect the Montgomery housing area and provide access to the center of the site via Samuel Dupont Avenue from the west and John Montgomery Drive from the south. Access to the Montgomery housing area from the east is via Taper Avenue. These access locations would not be changed.

The portion of the Montgomery housing area that would be developed into Air Force housing would be maintained by the Air Force, the responsible party for upkeep of all roadways and facilities under its jurisdiction. Electricity, gas, water and wastewater services would be provided by the appropriate local utility company on a reimbursable basis. Solid waste disposal services would be provided by local haulers on a reimbursable basis.

2.6 FORT MACARTHUR UPPER RESERVATION ALTERNATIVE

The use of property on the Fort MacArthur Upper Reservation has been investigated since the early 1980s after the reservation was vacated by the US Army. In 1986, the use of 21 acres of property on the northwestern portion of the Fort MacArthur Upper Reservation was considered for housing by the Air Force (USAF, 1986a and b). In 1993, a 50-year lease was signed by the LAUSD and the Air Force which allows the Air Force to build MFH units for LAAFB personnel on a 26.7-acre parcel on the northern section of the Fort MacArthur Upper Reservation. However, the Air Force has not enforced the lease and taken possession of the property. The siting of MFH units at Fort MacArthur Upper Reservation was determined to be a reasonable alternative because it would allow the Air Force to consolidate its housing areas and provide centralized Air Force support and facilities to military families, while meeting all of the other selection considerations. As an alternative to the Proposed Action, the Air Force would construct up to 96 single, detached MFH units on 19.5 of the 26.7 acres leased from the LAUSD at the Fort MacArthur Upper Reservation in San Pedro, California.

2.6.1 Location and Setting

The new MFH would be located on the northwest portion of the Fort MacArthur Upper Reservation in San Pedro, California. The site is located in the southern part of the community of San Pedro within the City of Los Angeles. Approximately 23 miles south of downtown Los Angeles and 20 miles southeast of LAAFB, the site is located west of the Port of Los Angeles. It is approximately one-half mile from the oceanfront and adjacent to Angels Gate Park (Figure 2.6-1).

The housing site is within the Fort MacArthur Upper Reservation which encompasses Angels Gate Park. The Upper Reservation is jointly used by the LAUSD and the City of Los Angeles Department of Recreation and Parks (LADRP). The San Pedro/Wilmington Skills Center, Angels Gate Continuation High School and Point Fermin Outdoor School are operated by LAUSD within portable classrooms and former military buildings. Facilities include an automotive shop, a welding shop, classroom and warehouse/storage areas. Existing educational facilities and activities currently conducted by the LAUSD within the 26.7-acre leased area would be relocated to other locations on or off the Fort MacArthur Upper Reservation, as described in Subchapter 2.6.3.

The housing site is bounded by Alma Street to the west, 36th Street to the southwest, LAUSD buildings and vacant areas to the south and southeast, Gaffey Street to the east, and residences along the south side of 30th Street to the north. The housing site is surrounded on three sides by residential areas. The predominant use in the surrounding area is single-family residential; however, some small scale multiple-family residential development (i.e., duplex and triplex) is interspersed (EP, 1989). The housing site is bordered by LAUSD and City of Los Angeles park facilities to the south.

Angels Gate Park, south of the housing site and operated by LADRP, includes a variety of cultural and recreational facilities. The most predominant is the Korean Friendship Bell situated on the bluff overlooking the Pacific Ocean. The Batteries

Figure 2.6-1

Fort MacArthur Military Family Housing Alternative

Osgood-Farley and Fort MacArthur Military Museum - Coast Artillery, the Mission Maria Stella Maris Church, a maritime broadcast station, a youth hostel, and a public swimming pool are also located in Angels Gate Park. Point Fermin Beach Park is located on the coast south of Angels Gate Park.

2.6.2 Background of Fort MacArthur Upper Reservation

Once an active Army facility, the Fort MacArthur complex consisted of four separate components: Upper Reservation, Middle Reservation (currently an active Air Force installation), White Point and the Hospital Area. The Upper Reservation was originally part of the Los Angeles Harbor Defense system. Three coastal defense batteries (artillery emplacements) were built between 1916 and 1919 on the Upper Reservation. These guns were dismantled between 1943 and 1945. However, the Upper Reservation continued as an active military facility until the early 1970s when it was declared surplus by DoD. The Battery Barlow-Saxton on the Upper Reservation was officially placed on the National Register of Historic Places in 1982 (EP, 1989).

When military use of the Fort MacArthur Upper Reservation was discontinued, a portion of the property was deeded to the LAUSD. With the closing of the Harcourt Brace Jovanovich, Inc. (HBJ) Marineland (formerly Marineland of the Pacific) facility in Palos Verdes, the Los Angeles City Board of Education approved a plan to establish a joint venture foundation between the LAUSD and HBJ to promote scientific opportunities for students studying southern California marine life. Consequently, a master plan for the Fort MacArthur Educational Complex was developed at the request of the US Department of Education. The plan was subsequently adopted by the City Board of Education in 1987 and conditionally approved by the US Department of Education in 1988 (EP, 1989). A marine animal care facility, marine studies consortium, and center for marine studies were planned to be developed on the Upper Reservation. A Marine Mammal Care Center is located south of the proposed housing site off Leavenworth Drive. Other facilities in the plan have not yet been constructed and are not reasonably foreseeable due to lack of funding.

On October 16, 1993, LAUSD, as Lessor, signed a 50-year lease to the Air Force for the use of 26.7 acres of land on the Fort MacArthur Upper Military Reservation to develop up to 150 MFH units. The leased area is delineated as the housing site on Figure 2.7-1. This agreement was endorsed by the Governor of California. The deed that granted the property to the LAUSD contained a reversionary clause in favor of the U. S. Department of Education which had restricted use of the property to educational purposes. The lease was subject to, and conditioned on, the US Department of Education releasing the property comprising the proposed housing site from this use restriction. The State of California has identified substitute property to be sold to compensate the LAUSD if the Air Force decides to enforce the lease. The LAUSD has approved an agreement with the State of California for this exchange transaction and has recorded documents that remove the reversionary clause applicable to the Fort MacArthur Upper Reservation. At the end of the lease, the property will be returned to the LAUSD in its original state, or LAUSD may take possession of the property as developed.

2.6.3 Relocation of LAUSD Facilities and Operations

Existing LAUSD structures within the housing site, as shown on Figure 2.6-2, would be relocated as summarized on Table 2.6-1.

2.6.4 Construction Program

Of the 26.7 acres on the Upper Reservation that are leased to the Air Force, approximately 19.5 acres are buildable and would be used for the development of new housing. The preliminary design and construction schedule would be similar to that shown in Figure 2.4-3 (for the Proposed Action). Site preparation and demolition of existing structures would occur over 6 months. The total construction period is estimated to require approximately 20 months.

Site preparation activities include: asbestos studies and abatement; proper disposal of lead-based paint debris; demolition of structures (that are not relocated) within the 26.7-acre lease area; and clearing and grading with possible cut and fill activities. Figure 2.6-3 depicts the locations of construction-related activities. Infrastructure, including utilities, fencing, new roadways, and lighting would be constructed for the housing area. Construction of the housing would be conducted in accordance with AFI 32-6002 and the Air Force Family Housing Guide.

Hazardous waste and contaminated sites within the 26.7-acre lease property have been identified, and are being or have been remediated as required. Sites will be remediated to within regulatory limits either before site preparation activities for housing construction or as part of site preparation for construction of the housing.

2.6.5 Description of the Housing Area

The new MFH, its occupancy projection and maintenance would be the same as described in Subchapter 2.4.4. The historic Battery Barlow-Saxton on the northwest portion of the site would be left in place and fenced or otherwise secured.

The housing area would be accessed from Gaffey Street on the northeast corner of the site via Barlow-Saxton Road, which would be gated at Gaffey Street. This road is currently shared by LAUSD and LADRP. This portion of the site is currently fenced, undeveloped and unmaintained. Existing roads would be used as much as possible and new roadways would be constructed throughout the site. An additional access would be constructed from Meade Drive onto Alma Street.

2.7 NO ACTION ALTERNATIVE

The No Action Alternative would entail the continued use of existing military housing facilities, as available, and the use of rental or leased units within the community. If the proposed White Point housing site or an alternative is not developed as planned, the Air Force would not be able to fulfill the current and future housing deficit. Under the No Action Alternative, White Point and the alternative sites would remain in their current condition.

Figure 2.6-2

Existing Structures on the Fort MacArthur Upper Reservation

Table 2.6-1

Relocation Plans for LAUSD Buildings Within the Air Force Lease Area

Bldg	Description	Current Use	Fate
870	Former military bldg	Unused	To be demolished.
880	Battery Barlow-Saxton	Unused	To be left in place and fenced or otherwise secured.
902	Former MARS station/radar control	Unused	To be demolished.
906	Former general storehouse for ordnance	Pesticide storage	To be demolished.
962	Former horse barn or vehicle shed	Unused	To be demolished.
976	Former military bldg	Angels Gate Continuation School	To be demolished.
978	Former general purpose warehouse	Unused	To be demolished.
982	Former general purpose warehouse	Unused	To be demolished.
984	Former general purpose warehouse	Unused	To be demolished.
986	Former vehicle shed	Storage-warehouse	To be vacated and demolished.
988	Former general instruction building	Welding shop	Operations to be relocated off site to Harbor Occupational Center (San Pedro). Building to be demolished.
990	Former vehicle shed	Automotive shop (bus maintenance)	Operations to be moved to Wilmington Skills Center elsewhere on the reservation. Building to be demolished.
992	Former motor shed	Automotive shop	Operations to be moved to Wilmington Skills Center elsewhere on the reservation. Building to be demolished.
994	Former vehicle shed	Automotive shop	Operations to be moved to Wilmington Skills Center elsewhere on the reservation. Building to be demolished.
996	Former military bldg	Storage/warehouse and automotive shop	Storage/warehouse to be vacated. Automotive shop to be moved to Wilmington Skills Center elsewhere on the reservation. Building to be demolished.

Figure 2.6-3

Site Preparation Activities and Roadway Access Locations

2.8 SUMMARY OF ENVIRONMENTAL IMPACTS

This EA considers environmental impacts of the proposed development of new Air Force MFH at the White Point Navy housing site and two alternative sites. Factors that influence environmental impacts include projections of the effects on the biophysical environment and infrastructure demands as summarized on Table 2.8-1. The findings of the environmental impact analyses are as follows:

- The Proposed Action to develop a new housing area at White Point would not result in any significant impacts.
- The Montgomery Navy Housing alternative would not result in any significant impacts.
- Fort MacArthur Upper Reservation Alternative would result in one significant impact. The increase in local residential traffic on Alma Street between Meade Drive and 25th Street (when Alma Street is used as the main access) would exceed LADOT standards, and no mitigation is available.

2.9 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The preferred alternative is the development of MFH at White Point as described in Subchapter 2.4.

Table 2.8-1

Summary of Impact Influencing Factors

Factor	White Point Navy Housing (Proposed Action)	Montgomery Navy Housing Alternative	Fort MacArthur Upper Reservation Alternative	No Action Alternative
Ground disturbance (acres)	up to 24.4	25.0	19.5	0
Construction-related temporary visual distraction	Yes	Yes	Yes	N/A
Increase in population on the site	70	20	373	N/A
Increase in number of residential units on the site	18	5	96	N/A
Increased localized traffic (total daily trips)	163	39	910	N/A
Increase in water demand during operation (gpd)	6,776	1,884	36,133	0
Increase in wastewater generation (gpd)	11,527	3,204	61,463	0
Increase in household solid waste generation (lb/day)	270	75	1,440	0
Diesel fuel consumption during construction (gal)	55,000	55,000	55,000	N/A
Gasoline consumption during construction (gal)	49,000	49,000	49,000	N/A
Increase in gasoline consumption during occupancy of MFH (gpd)	less than 600	less than 500	617	0
Increase in electrical energy consumption during occupancy at MFH (kWh/yr)	414.6	negligible	5,626.5	0
Increase in natural gas consumption (cf/yr)	5,894.7	negligible	80,000	0
Potential exposure to unknown contaminated soil during construction	Yes	Yes	Yes	No
Potential soil contamination from, or human exposure to, lead-based paint or asbestos	Yes	Yes	Yes	No
Potential human exposure to PCBs from electrical transformers	No	No	Yes	No
Potential loss of archeological or paleontological resources	Yes	Yes	Yes	No
Potential transport of pollutants off-site by stormwater runoff	Yes	Yes	Yes	N/A
Increase in impervious ground surface (acres)	~3	0	~15	N/A
Incremental increase over 1997 baseline in traffic-generated noise from the project during occupancy (dBA)	up to 0.4	up to 2.0	up to 2.4	0
Construction-generated noise level (dBA)	67 to 86	67 to 86	67 to 86	N/A
Loss of on-site biota and habitat (acres)	8	0[a]	15.7	0
Volume of demolition solid waste (cubic yards)	10,069	8,909	3,422	0
Duration of demolition activities (days)	60	60	30	N/A
Mitigated emissions of asbestos during demolition (lb/day)	0.08	0.07	0.05	N/A

[a] On-site biota and habitats consist of non-native, horticultural species that are considered of low biological value. Areas estimated for alternative sites.

N/A Not applicable

CHAPTER 3

AFFECTED ENVIRONMENT

CHAPTER 3

AFFECTED ENVIRONMENT

This chapter of the EA describes the existing environment that would be affected by the Proposed Action or an alternative. The study area for most resources was confined to the immediate area of the proposed housing sites. For some environmental resources, a wider regional study area was used, as appropriate. Resources that would not be significantly affected by the implementation of the Proposed Action or an alternative, and issues that were not raised during the public scoping process are not discussed in detail in this chapter.

3.1 LOCAL COMMUNITY

This chapter addresses the community setting, plans and zoning, existing land uses, and aesthetics of the proposed housing sites and adjacent areas. The surrounding land uses are not anticipated to change following the completion of the Proposed Action or an alternative. The agencies that have adopted land use plans covering the proposed housing sites and surrounding areas include the Air Force, LAUSD, City of Los Angeles, and California Coastal Commission (CCC).

3.1.1 Community Setting

3.1.1.1 White Point Navy Housing

The White Point Navy housing site is located in the San Pedro community of the City of Los Angeles. The setting of the site was described in Subchapter 2.4.1.

3.1.1.2 Montgomery Navy Housing

The Montgomery Navy housing area is located within the City's planning community of Wilmington-Harbor City, north of the San Pedro Community Plan District (see discussion in Subchapter 2.5.1).

3.1.1.3 Fort MacArthur Upper Reservation

The proposed housing site within the Fort MacArthur Upper Reservation is located in the City of Los Angeles planning community of San Pedro (see discussion in Subchapter 2.6.1).

3.1.2 Plans and Zoning

3.1.2.1 White Point Navy Housing

The White Point housing area and adjacent 8-acre parcel are owned and controlled by the US Navy. The property has been transferred to the Air Force pursuant to 10 USC 2671(a). Federally-owned property is not subject to the planning or zoning policies of a local jurisdiction. However, Federally-owned property within the California Coastal Zone is subject to the Federal Coastal Zone Management Act of 1972, as amended. The uses surrounding the White Point housing area are within the jurisdiction of the San Pedro Community Plan and City of Los Angeles Zoning Ordinance.

San Pedro Community Plan. The areas surrounding the housing area to the east and west are primarily designated for low-density, single-family residential dwelling units. The properties located to the north and northwest of the housing area along 25th Street and Western Avenue are designated as Neighborhood & Office Commercial uses. The area to the south is designated for open space use.

Zoning. The properties adjacent to the White Point site are zoned R1 to the east and west, corresponding to the Low Density Single-family Residential general plan designation. The commercial properties located to the north and northwest are zoned C1. Land uses to the south between Paseo del Mar and the Pacific Ocean are designated A1.

Other Relevant Plans. The surrounding land uses in the vicinity of the White Point housing area are controlled in part by the goals and policies of the City's Scenic Highways Element and City Bicycle Plans. The Scenic Highways Plan contains goals and policies which are intended to preserve and enhance scenic resources, and to maximize views from public trails or highways. The Bicycle Plan was implemented to encourage the safe use of bicycle trails through a comprehensive bicycle transportation system. Paseo Del Mar, located south of the housing site, is designated as a Scenic Highway. It is part of the Backbone System of the City of Los Angeles bicycle routes. In addition to Paseo Del Mar, bicycle routes are located along the southern and western border of the housing area.

3.1.2.2 Montgomery Navy Housing

The Montgomery housing area is owned by the US Navy. The areas surrounding the Montgomery housing area are located within federally-owned lands and lands incorporated by the cities of Los Angeles and Rancho Palos Verdes. These lands are under the jurisdictions of the federal government, and the General Plans and Zoning Ordinances of the two above mentioned cities. The Montgomery housing area and adjacent uses are situated at the southern boundary of the Wilmington-Harbor City Plan district, adjacent to the San Pedro Community Plan district and the City of Rancho Palos Verdes.

3.1.2.3 Fort MacArthur Upper Reservation

The Fort MacArthur Upper Reservation housing site, while formerly a military installation, is currently owned by a local governmental agency, the County of Los

Angeles Unified School District (LAUSD). Land use plans and zoning policies, as well as other relevant state and federal plans and regulations, are described below.

San Pedro Community Plan. The San Pedro community is located within the City of Los Angeles and, for land use purposes, is controlled by the City of Los Angeles' General Plan and Zoning Ordinance. The San Pedro Community Plan is one of the 35 community plans which comprise the City of Los Angeles General Plan. It designates the site for "Open Space" and "Public/Quasi-Public" uses, which permit and encourage educational facilities.

Zoning. The site is zoned A1-1, Agricultural Zone, Height District 1. According to the City of Los Angeles Planning and Zoning Code, Chapter 1 of the Municipal Code, single-family residential uses are permitted within this zoning designation at a density of two units per five acres with a minimum of 2.5 acres per unit. In addition to the requirements relating to the A1-1 zone, Height District 1 prohibits development from exceeding a 1.5:1 Floor Area Ratio (FAR). A 1.5:1 FAR indicates that the height of a building cannot exceed 1.5 times the floor area of the building. However, FAR only applies to commercial and industrial uses.

Local Coastal Program. A portion of the San Pedro community is located within the California Coastal Zone. The Coastal Zone Management Act of 1976 requires that local governments prepare a Local Coastal Program (LCP) for all areas under their jurisdiction located within the coastal zone. The 1986 amendments to the San Pedro Community Plan serve as the land use plan (LUP) portion of the LCP for the San Pedro area. In addition to the LUP, a LCP addresses other issues (such as access, new development and marine resources) in order to ensure public accessibility while protecting coastal resources. The LCP for the San Pedro area does not designate any specific land uses for the Fort MacArthur Upper Reservation.

Coastal Zone Management. Section 307 of the Federal Coastal Zone Management Act of 1972, as amended (16 USC Section 1456, with implementing regulations in 15 CFR Part 930) requires that a Coastal Consistency Determination (CCD) be submitted to the CCC for Proposed Actions within, or impacting, the coastal zone. A CCD prepared for submittal to the CCC should include information regarding public coastal zone access, recreational opportunities, the marine environment, land resources, and project development per Chapter 3, Article 2 through 6 of the California Coastal Act of 1972, as amended. Generally, the coastal zone extends from the State of California's 3-mile seaward limit to an average of approximately 1,000 yards inland. However, at White Point the coastal zone turns further inland, runs along 25th Street to include the Upper and Middle/Lower portions of the Fort MacArthur Military Reservation (CCC, 1994b), as shown on Figure 3.1-1.

San Pedro Coastal Specific Plan. The San Pedro Coastal Specific Plan serves as an implementation tool of a General Plan or LCP. Specific plans address zoning and planning issues of particular areas, and provide detailed regulations and guidelines which are site specific and more sensitive to the constraints and opportunities of an area or

Figure 3.1-1

Coastal Zone

individual site. The Fort MacArthur Upper Reservation is under the jurisdiction of the San Pedro Coastal Specific Plan, which was adopted by the City of Los Angeles concurrently with the San Pedro LCP. Under this specific plan, the Upper Reservation is designated for Public/Quasi-Public purposes, which is consistent with the City's General Plan and zoning regulations. The specific plan contains several regulations which affect development on the site. There are two areas of restrictions with which the Proposed Action must comply: (1) utility location/ undergrounding of utilities, and (2) height limits. The height limit for any structure under the Specific Plan is 26 feet.

City of Los Angeles Master Plan for Angels Gate Park. The City of Los Angeles Department of Recreation and Parks (LADRP) has developed a Master Plan for Angels Gate Park which includes improvement of recreational resources on the Upper Reservation. This plan proposes the future development of new athletic fields and other recreational facilities to be constructed south of the proposed housing site.

Los Angeles Unified School District Marine Studies Master Plan. LAUSD has proposed development of a Marine Studies Center to be located adjacent to the southern boundary of the housing site. LAUSD does not presently have a finalized blueprint for the facility, nor has a specific location been determined. In addition, development of the center is contingent upon funding through donations. If and when funds become available, the LAUSD staff has indicated that the location of the center on the LAUSD property would be compatible with the proposed MFH (Donald, 1994).

Marine Bird Rehabilitation Facility. The Marine Mammals Study Center has proposed a facility to promote the rehabilitation and study of marine birds. Architectural plans are currently being prepared and construction of the facility is anticipated to be completed in 1997. The center will be located adjacent to the existing Marine Mammals Study Center on LAUSD property, south of the housing site (Zumalt, 1994).

3.1.3 Land Use

3.1.3.1 White Point Navy Housing

The White Point housing area is located on the White Point Naval Reserve which also contains the Pacific Heights Air Force housing area. Western Avenue borders the reservation to the west, 25th Street is the northern border, Paseo del Mar is the southern border, and a residential neighborhood is located east of the site. Whites Point Drive separates the White Point and the Pacific Heights housing areas. The surrounding community is suburban with several medium- to low-density residential neighborhoods (Figure 3.1-2). Surrounding land uses include commercial, public/institutional and open space.

The 8-acre parcel is a vacant steep-sloped grassland, with the exception of abandoned former military structures (concrete pillboxes) along the northern terrace and an abandoned asphalt road along its western and southern perimeter. This area is not generally used by the public due to access restrictions.

Figure 3.1-2

Land Use in the Vicinity of White Point Navy Housing Area

3.1.3.2 Montgomery Navy Housing

The Montgomery housing area is located in the southwestern portion of the Naval Reservation which also contains the Taper Avenue former Navy housing site and the DLA tank farms (see Figure 3.1-3). The Naval Reservation is situated between Western Avenue on the west, Gaffey Street on the east, Sandwood Place on south and Palos Verdes Drive North on the north. The boundaries of the Montgomery housing area include John Montgomery Drive to the north, east and south, and Western Avenue to the west. The vacant Taper Avenue housing is located to the east, residences are located to the west and south, and industrial uses are located to the north.

The surrounding community is a suburban area characterized primarily by a mix of residential and commercial development. The housing area is surrounded on three sides by a mix of multi- and single-family residential uses. One-, two-, and three-story condominium and townhome developments are located to the south of the site along Stonewood Court. To the east of the housing area is the Taper Avenue site which contains 140 abandoned military family dwelling units. To the west of the housing area in the City of Rancho Palos Verdes is a medium-density, single-family residential neighborhood with primarily single-story dwelling units. This development is located at a higher elevation than surrounding uses along the eastern side of Western Avenue.

The land uses along Western Avenue, south of the Montgomery housing area include retail commercial uses. These include several U-shaped mini-malls with surrounding surface parking lots.

Industrial uses are located to the north of the housing area. Grassy sloped buffers are located along the northern boundary. Adjacent to the buffer area is the DLA tank farm, which is obstructed from the view of the residences at the Montgomery housing area.

The Green Hills Memorial Park, a cemetery, is located northwest of the housing area along Western Avenue. The cemetery is partially visible from homes along Samuel Dupont Drive within the housing area. A large vacant area is also located along the east side of Western Avenue adjacent to the southern boundary of the housing area.

3.1.3.3 Fort MacArthur Upper Reservation

The housing site is located on the northern portion of the Fort MacArthur Upper Reservation. Fort MacArthur Upper Reservation is a former military reservation, which was originally part of the Los Angeles Harbor Defense System. In the early 1900s, gun batteries were constructed on the Upper Reservation. The Battery Barlow-Saxton, which is located on the northern portion of the site, was officially placed on the National Register of Historic Places in 1982 (see discussion in Chapter 3.11).

The site is developed with older style, one-story World War II-era military buildings and more recent portable classrooms. These buildings range in floor area from approximately 400 to 5,000 square feet. Several of the structures are used and operated by the LAUSD, including the San Pedro/Wilmington Skills Center, Angels Gate

Figure 3.1-3

Land Use in the Vicinity of Montgomery Navy Housing Area

Continuation High School facilities, an outdoor education camp, and a school bus storage/maintenance facility. The site also includes an athletic field and other open space. The athletic field is located on Meade Road, near the southern boundary of the site.

The San Pedro community is a primarily suburban area characterized primarily by low-density residential development with commercial and waterfront districts. The housing site is located in a predominantly residential area, surrounded on three sides primarily by low-density, single-family residential uses (Figure 3.1-4). Small scale multi-family residential developments, such as duplexes, triplexes, and fourplexes are also located within the area. Multi-family units are located mostly along the west side of Gaffey Street. Single-family residential units dominate the majority of the land uses east, north, and south of the site, with the exception of three blocks between Meyler Street on the east, Almeria Street on the west, 37th Street on the south, and 36th Street on the north (see Figure 3.1-4), which consists of multi-family units. These blocks are developed with multi-family units. A small multi-family dwelling area is located southwest of the Fort MacArthur Upper Reservation, between Alma Street on the east, Leland Street on the west, 36th Street on the south, and one-half block north of 36th Street.

The area in the vicinity of the housing site is densely developed, with limited undeveloped or open space resources. The two primary open space and/or recreation areas in the vicinity are Angels Gate Park and Point Fermin Beach Park (see Figure 3.1-4, and discussion in Subchapter 3.3.6, Recreation). Angels Gate Park, which occupies the eastern portion of the Fort MacArthur Upper Reservation, is under the jurisdiction of the LADRP. In addition to open space, six important facilities are located in the park: (1) the Korean Friendship Bell, located in the central area of the park; (2) the Battery Osgood-Farley and Fort MacArthur Military Museum, designated as historic sites (the battery is listed on the National Register of Historic Places); (3) the Mission Maria Stella Maris, an active church facility, located adjacent to the Battery Osgood-Farley and Museum; (4) a maritime broadcast station, located in the eastern portion of the park; (5) a youth hostel, located to the north of the Korean Friendship Bell; and, (6) a public swimming pool, located at the northeastern corner of the park (see Figure 3.1-4). The remainder of the park area is undeveloped or contains old military buildings, similar to those on portions of the housing site.

Point Fermin Park is an oceanfront beach park located southeast of Angels Gate Park. It encompasses the area south of Paseo Del Mar. The park is a designated viewpoint, and is protected under the San Pedro Coastal Specific Plan.

3.1.4 Aesthetics

3.1.4.1 White Point Navy Housing

The White Point site is located in an area generally characterized by low-density residential uses, recreational resources, scenic parks, and neighborhood commercial activities. The adjacent properties to the south and east of White Point are situated at a lower elevation. Therefore, the surrounding residential uses have views of the

Figure 3.1-4

Land Use in the Vicinity of Fort MacArthur Upper Reservation

undeveloped hillsides and mature landscaping rather than a direct view of the structures occupying the housing area.

Residential uses to the west of the housing site (Pacific Heights Air Force housing) are located at approximately the same elevation, but are separated by Whites Point Drive and landscaping. Motorists traveling along the south side of 25th Street are afforded an obstructed and limited view of the housing area.

The White Point site includes a hilly, sloping open space to the south which is lined with coastal grasslands. These open space areas are undisturbed by the existing buildings on the site. A total of 78 dwelling units in the housing area are clustered northeast of the open space. Ocean views to the south are seen from the housing area.

The housing on the site was constructed in the International architectural style in 1965, and represents typical coastal community type suburban housing often found along the Atlantic Ocean. Attached townhouses are primarily two-story with attached carports in front. Some units are one-story, single-family homes. The units are painted light gray and contain several windows. Mature landscaping dominates the site, characterized by trees canopying two sides of the street.

The northern and eastern portions of the housing area are bordered by landscaped-covered cyclone fencing, and the western portion of the housing area is bounded by Whites Point Drive. The southern portion of the site includes 8 acres of grassy bluffs encircled by an abandoned asphalt road. The remainder of this vacant area slopes down to Paseo del Mar.

One of the primary land uses in the area is commercial. There are four strip malls surrounding the intersection of 25th Street and Western Avenue. Adjacent to the office building is the fourth strip mall, a U-shaped stucco, wood, glass, and terra cotta tile style complex. Direct views of the housing area are not seen from these areas.

In addition to residential uses, the housing area is surrounded by scenic resources. Paseo Del Mar, located to the south, provides scenic views and is a designated segment of the Backbone System of bicycle routes in the City of Los Angeles. Bicycle routes are also located along the southern and western border of the housing area. Public beaches are located south of the housing area along the coastline, affording ocean views. The dwelling units located within the housing area are visible from Paseo del Mar.

3.1.4.2 Montgomery Navy Housing

The Montgomery housing area is located in an area characterized by a mix of residential, commercial, open space, and industrial uses. The elevation of the site descends towards the southeast of the housing area. The views of the housing area from the multi-family residential uses south of the site are limited. Views from the residential uses in the City of Rancho Palos Verdes on the west side of Western Avenue are obstructed by landscaping. Residential uses to the east of the site at the western end of the Taper Avenue site are directly adjacent to the site, and therefore, structures on the site are visible to these residences.

The housing area contains 245 military family dwelling units located along both sides of John Montgomery Drive, Samuel Dupont Avenue, John Sloat Drive and Robert Stockton Place. The dwelling units are approximately 30 years old. The dwelling units are setback approximately 5 to 10 feet from the street.

The dwelling units are single-story duplexes. These structures are unadorned, simple military type dwelling units in the Capeheart architectural style. The units are constructed of stucco and wood and have pitched roofs made of composite materials. Some of the units are painted in brown and tan tones with darker brown accents, and some of the units located primarily in the northwestern portion of the site, are painted light gray or light blue with white accents or dark blue accents. There are two basic styles of duplexes. One of the styles has a single driveway which splits into separate driveways leading to garages attached to each unit. The other style has a common garage with separate driveways attached to one of the units.

Small grassy areas are located in the front of the homes, and the units also have small grassy backyards. The backyards are encircled by wood fences. The plant life and landscaped environment of the housing area is limited to shrubbery, some scattered trees, and ground covering, weeds, and grass. The number of trees per dwelling unit ranges from approximately one to four, and are of various species.

The entire housing area is enclosed by cyclone fencing with barbed wire at the top. Both of the western and the eastern entrances can be gated. The southerly entrance along Western Avenue is adjacent to a large open space, with housing on both sides of the street. The northerly entrance along Western Avenue is framed by landscaped fencing adjacent to residential uses within the housing area. The eastern entrance of the housing area is located adjacent to the former Taper Avenue Navy housing area and is framed by the San Pedro Mini-Mart/Exchange and a playground.

3.1.4.3 Fort MacArthur Upper Reservation

The housing site is located in an area generally characterized by low-density residential uses, recreational resources, scenic parks, and small-scale commercial activities. The adjacent properties to the west, east, and south are at a lower elevation than the site. The surrounding residential properties have views of the undeveloped hillside slopes rather than a direct view of the structures currently occupying the site (i.e., hillside is visible from Alma and Gaffey Streets).

Residential properties northwest of the housing site, along the northern part of Alma Street and along Almeria Street, are situated at an equal or higher elevation than the site. Therefore, structures on the Upper Reservation and on the housing site are visible to these residences. The housing units north of the site are situated at the same elevation as the site. However, these homes face north, away from the site.

The housing site is characterized by open space areas lined with non-native grassland vegetation communities (see Chapter 3.10, Biological Resources). These open space areas are, however, disturbed by existing buildings on the site. The buildings are scattered around the Upper Reservation and are used for educational and recreational purposes. Ocean views are seen to the south and southwest of the site.

Structures on the site represent typical World War II-era style low rise buildings. The buildings, which range in size from 400 to approximately 5,000 square feet, are typically drab and unadorned, light colored, single-story clapboard structures. However, some of the newer structures were constructed with stucco. Building roofs are either flat or pitched, and covered with tar paper type materials. The scattered military style buildings and vegetated open space are visible from some of the surrounding areas.

Landscaped environments on the housing site are limited to existing non-native vegetation (such as shrubbery, some scattered trees, and ground covering), weeds, and grass on the athletic field. Due to the disturbed nature of the open space areas and the existing developed environment, the housing site is not a designated scenic resource or considered a visual resource.

3.2 TRANSPORTATION

This subchapter describes existing transportation resources, including public transportation and roadway facilities for automobiles. Public transportation is available from the Los Angeles County Metropolitan Transportation Authority (MTA). Military personnel residing at the Pacific Heights Air Force housing area can take an MTA Municipal Area Express bus (MAXBus) No. 3 from 25th Street and Western Avenue to and from LAAFB, where it stops at Aviation and El Segundo Boulevards. This line operates approximately every 20 minutes during peak workday travel hours, and hourly the rest of the day. This line would be available to potential residents of the proposed White Point housing area. Montgomery housing residents would be able to use MAXBus No. 3 from Western Avenue and Palos Verdes Drive North to and from LAAFB. MTA Max Bus 3 stops at 25th and Gaffey Streets where it would be available to potential residents at the Fort MacArthur Upper Reservation Alternative housing site.

3.2.1 Existing Conditions

3.2.1.1 White Point Navy Housing

The White Point Navy housing site consists of: (a) 78 dwelling units currently and partially occupied by Navy and other military personnel; and (b) a vacant 8-acre parcel south of the Navy housing area. The White Point housing area is bounded to the north by 25th Street, to the east by non-military housing, to the south by Paseo del Mar, and to the west by other military housing (Pacific Heights Air Force housing area). The proposed White Point housing would continue to be accessed solely from 25th Street via Whites Point Drive. No direct access would be provided to the 8-acre portion of the site south of the existing housing. The principal local roadways within the White Point housing study area are described below.

<u>25th Street</u>. 25th Street is an east-west arterial roadway through the community of San Pedro. It runs along the northern boundary of the White Point housing area, effectively terminating to the east at Gaffey Street. Approximately one mile west of Western Avenue, 25th Street becomes Palos Verdes Drive South in the City of Rancho Palos Verdes. In the vicinity of the housing area, 25th Street is a four-lane, divided roadway. However, east and west of the housing area, 25th Street/Palos Verdes Drive South is a two-lane roadway.

Adjacent to the White Point housing area, 25th Street is approximately 64 feet in width (measured curb-to-curb). There are two travel lanes in each direction, and a separate left-turn lane within a painted center median. On-street parking is prohibited on 25th Street adjacent to the housing area. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that 25th Street carries approximately 10,000 vehicles per day west of Gaffey Street. Based upon the weekday evening peak hour traffic data (Traffic Data Services, 1995), it is estimated that 25th Street carries approximately 13,500 vehicles per day east of Western Avenue and adjacent to the housing area.

Western Avenue. Western Avenue is a north-south arterial through the community of San Pedro (within the City of Los Angeles), the City of Rancho Palos Verdes, and the City of Lomita. Western Avenue's southern terminus is at Paseo del Mar (adjacent to the Pacific Ocean). Western Avenue extends far beyond the study area through the City of Los Angeles. Approximately six miles north of the Montgomery site, there is an interchange at Western Avenue with I-405 (San Diego Freeway). Based upon the weekday evening peak hour traffic data (Traffic Data Services, 1995) (a traffic data research organization), it is estimated that Western Avenue carries approximately 6,500 vehicles per day north of Paseo del Mar, approximately 31,000 vehicles per day south of Palos Verdes Drive North, and approximately 19,000 vehicles per day north of Palos Verdes Drive North.

Western Avenue is approximately 80 feet in width (measured curb-to-curb). There are two travel lanes in each direction, and a separate left-turn lane within a barrier center median.

Gaffey Street. Gaffey Street is a north-south arterial roadway through the community of San Pedro. Gaffey Street is located approximately one mile east of the White Point housing area. Approximately 1.75 miles north of 25th Street, the southern terminus of I-110 (Harbor Freeway) intersects with Gaffey Street. In this area, Gaffey Street is a six-lane, divided roadway. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that Gaffey Street carries approximately 54,000 vehicles per day south of its interchange with I-110. Conversely, at both 25th Street and near its southern terminus at Paseo del Mar, Gaffey Street is a two-lane, undivided roadway. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that Gaffey Street carries approximately 14,500 vehicles per day north of 25th Street and approximately 4,000 vehicles per day north of Paseo del Mar.

3.2.1.2 Montgomery Navy Housing

The Montgomery housing area contains 245 residences which are currently and partially occupied by Navy personnel. The internal street system of this site is connected to Taper Avenue to the east. Direct access is provided from John Montgomery Drive to Western Avenue to the west.

The Montgomery housing site study area is bounded to the north by DLA property and the Naval Reservation, to the east by the Naval Reservation, to the south by non-military, single-family residences, and to the west by Western Avenue. The study area would continue to be accessed from Western Avenue (via two intersections with John Montgomery Drive). The principal local roadways within the Montgomery site study area are described below.

Western Avenue. On-street parking is permitted on Western Avenue adjacent to the Montgomery Navy housing area. Based upon the weekday evening peak hour traffic data (Traffic Data Services, 1995), it is estimated that Western Avenue carries approximately 31,000 vehicles per day north of John Montgomery Drive (northbound).

Gaffey Street. Gaffey Street is located approximately one-half mile east of the Montgomery site. Near its southern terminus at Paseo del Mar (adjacent to the Pacific Ocean), Gaffey Street is a two-lane, undivided roadway. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it carries an estimated 4,000 vehicles per day. South of the Montgomery site at its interchange with I-110 (Harbor Freeway), Gaffey Street is a six-lane, divided roadway. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it carries an estimated 54,000 vehicles per day (south of I-110). North of the Montgomery site at its northern terminus at Anaheim Street, Gaffey Street is a four-lane, divided roadway. Based upon the weekday evening peak hour traffic data (Traffic Data Services, 1995), it carries an estimated 15,500 vehicles per day south of Anaheim Street.

In the vicinity of the Montgomery site (at Westmont Drive), the width of Gaffey Street varies between 64 and 72 feet (measured curb-to-curb or to edge of pavement). There are two travel lanes in each direction, plus a separate left-turn lane within a painted center median. On-street parking is permitted on the west side of Gaffey Street south of Westmont Drive. However, on-street parking is prohibited in most other locations. Based upon the weekday evening peak hour traffic data (Traffic Data Services, 1995), it is estimated that Gaffey Street carries approximately 15,500 vehicles per day north of Westmont Drive and approximately 19,000 vehicles per day south of Westmont Drive.

Westmont Drive. Westmont Drive is an east-west collector roadway through the community of San Pedro between Gaffey Street (on the east) and Western Avenue (on the west). West of Western Avenue, Westmont Drive continues for approximately one-fourth mile as Delasonde Drive in the City of Rancho Palos Verdes. Westmont Drive is located approximately one-eighth of a mile south of the Montgomery site.

In the vicinity of the Montgomery site (at Taper Avenue), Westmont Drive is approximately 64 feet in width (measured curb-to-curb). There are two travel lanes in each direction, and on-street parking is permitted. However, at major intersections, on-street parking is prohibited in order to provide a separate left-turn lane within a painted center median. Based upon the weekday evening peak hour traffic data (Traffic Data Services, 1995), it is estimated that Westmont Drive carries approximately 9,500 vehicles per day west of Gaffey Street.

3.2.1.3 Fort MacArthur Upper Reservation

The Fort MacArthur Upper Reservation is jointly used by LAUSD and LADRP. The housing site study area is bounded to the north by residences along the south side of 30th Street, to the east by Gaffey Street and other portions of the reservation, to the south by 36th Street/Leavenworth Drive and other portions of the reservation, and to the west by Alma Street. The proposed housing site would be accessed from Gaffey Street via Barlow-Saxton Road. Barlow-Saxton Road is used by LADRP. Although currently closed, Barlow-Saxton Road intersects Gaffey Street at 32nd Street. In addition, a secondary access would be provided to Alma Street at an existing driveway on Meade Drive which is located south of 30th Street. No access exists or is proposed to or from the north via 30th Street. Although the site is presently accessible from the south via Leavenworth Drive and Meade Drive on the Fort MacArthur Upper Reservation, these roadways are not proposed to provide access. The principal local roadways within the Fort MacArthur Upper Reservation housing site study area are described below.

Gaffey Street. Gaffey Street runs along the eastern boundary of the Fort MacArthur Upper Reservation. Approximately two miles north of the study area, the southern terminus of Interstate (I)-110 (Harbor Freeway) intersects Gaffey Street. In this area, Gaffey Street is a six-lane, divided roadway. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that Gaffey Street carries approximately 54,000 vehicles per day south of its interchange with I-110. Conversely, near its southern terminus at Paseo del Mar, Gaffey Street is a two-lane, undivided roadway. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that Gaffey Street carries approximately 4,000 vehicles per day north of Paseo del Mar.

Adjacent to the proposed housing site, Gaffey Street is a two-lane, undivided roadway with a curb-to-curb width of approximately 50 feet. There is one travel lane in each direction, and on-street parking is permitted. Access to the Upper Reservation housing site is currently provided from Gaffey Street only at Leavenworth Drive. However, there is an inactive site access at Barlow-Saxton Road opposite 32nd Street. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that Gaffey Street carries approximately 5,500 vehicles per day adjacent to the site, immediately south of 30th Street.

Alma Street. Alma Street is a north-south collector roadway which runs along the western boundary of the Upper Reservation. Throughout its length, Alma Street is a two-lane, undivided roadway. On-street parking is generally permitted. Adjacent to the proposed housing site, Alma Street is approximately 30 feet in width (measured curb-to-curb). There is one travel lane in each direction, and on-street parking is permitted despite the relatively narrow roadway width. Access to the Upper Reservation from Alma Street is provided at Meade Drive south of 30th Street, but a locked gate prevents after-hours access. Based upon the weekday evening peak hour traffic data (Wiltec, 1994), it is estimated that Alma Street carries approximately 1,500 vehicles per day adjacent to the site south of 30th Street, and approximately 3,000 vehicles per day north of the site between 25th and 22nd Streets.

3.2.2 Existing Traffic Volumes

3.2.2.1 White Point Navy Housing

Based upon discussions with the LADOT, 12 intersections in the study area were identified as exhibiting the potential for being significantly impacted by traffic generated by proposed Air Force use of the White Point Navy housing area. Access to the White Point housing area would be obtained only from Whites Point Drive at 25th Street.

Existing weekday morning and evening peak hour volumes, respectively, at the 12 study intersections are summarized on Figures D-5 and D-6 in Appendix D. For all but two intersections, these peak hourly traffic volumes collected in 1994 were increased by 1.0 percent to reflect 1995 conditions, based upon discussions with LADOT (traffic volumes in the San Pedro area have historically increased at an average rate of approximately 1.0 percent per year). For the intersections of Western Avenue at 25th Street and Whites Point Drive at 25th Street, the volumes illustrated on Figures D-5 and D-6 reflect traffic data collected in February 1995 (Traffic Data Services).

3.2.2.2 Montgomery Navy Housing

Based upon discussions with LADOT, 8 intersections were identified as exhibiting the potential for being significantly impacted by traffic generated from the proposed housing at the Montgomery site. There are two intersections between Western Avenue and John Montgomery Drive within the Montgomery Navy housing area because John Montgomery Drive is a semi-circular loop. These intersections are located approximately one-eighth of a mile apart, with the northern intersection operating under traffic-signal control, and the southern intersection operating under stop sign control (John Montgomery Drive traffic stops upon intersecting Western Avenue). In this study, the northern intersection was identified for analysis by LADOT.

Existing weekday morning and evening peak hour volumes, respectively, at the eight study intersections are summarized in Figures D-3 and D-4 in Appendix D. These volumes represent the peak hourly volumes of traffic which were collected between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM in February 1995 by Traffic Data Services.

3.2.2.3 Fort MacArthur Upper Reservation

Based upon discussions with the City of Los Angeles Department of Transportation (LADOT), 13 intersections were identified as exhibiting the potential for being significantly impacted by traffic generated from the proposed housing on the Fort MacArthur Upper Reservation housing site. Access to the proposed housing at the Fort MacArthur Upper Reservation housing site would be via the intersection at Gaffey Street and 32nd Street (Barlow-Saxton Road), with secondary access via the intersection at Alma Street and Meade Drive.

Existing weekday morning and evening peak hour volumes, respectively, at the 13 study intersections are summarized on Figures D-1 and D-2 in Appendix D. Based upon discussions with LADOT, the peak hourly traffic volumes for each intersection collected in 1994 were increased by 1.0 percent to reflect 1995 conditions. According to LADOT, traffic volumes in the San Pedro area have historically increased at an average rate of approximately 1.0 percent per year.

3.2.3 Existing Levels of Service

Level-of-service (LOS) is a qualitative measure of traffic flow, based on conditions that may occur on a given travel lane when it is subjected to various traffic volumes. There are six LOS, A through F, which relate to traffic congestion from best to worst, respectively. In general, LOS A represents free-flow conditions with no congestion.

Conversely, LOS F represents severe congestion with stop-and-go conditions. LOS D and F often are considered to be unsatisfactory for design purposes.

Table 3.2-1 summarizes LOS criteria for signalized intersections, as defined by the LADOT and the Transportation Research Board. For the purpose of this analysis, the intersection LOS for each potential housing site were analyzed based upon the criteria summarized in Table 3.2-1.

Table 3.2-1

Level-of-Service Criteria For Signalized Intersections

Level-of-Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.800	GOOD. Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.000	POOR. Represents the most vehicles that intersection approaches can accommodate; may be long lines of vehicles waiting through several signal cycles.
F	1.001 or greater	VERY POOR. Total breakdown with stop-and-go operations.[a]

Source: LADOT, 1993b (except where noted)
[a] Transportation Research Board, 1985.

The Critical Movement Analysis (CMA) methodology was utilized in calculating LOS. The CMA methodology is a quantitative comparison of an intersection's traffic demand or volume (V) to its traffic-carrying capacity (C). The resulting volume-to-capacity (V/C) ratio establishes the LOS per the criteria in Table 3.2-1. The CMA parameters utilized in this study were based upon information contained in the Transportation Research Board's Interim Materials on Highway Capacity (1980). At the direction of LADOT, the CMA methodology and the criteria in Table 3.2-1 were utilized in analyzing both signalized and non-signalized study intersections.

3.2.3.1 White Point Navy Housing

The results of the existing LOS analyses for the 12 study intersections are summarized in Table 3.2-2. Eleven of the 12 intersections currently operate at LOS D or better during both the weekday morning and evening peak hours. At the Gaffey Street and 1st Street intersection, however, LOS F is experienced in the weekday morning peak hour, with LOS D occurring in the weekday evening peak hour.

Table 3.2-2

White Point Existing Weekday Level-of-Service

Intersection	Peak Hour Period	V/C[a]	LOS[b]
Gaffey Street at Summerland Avenue	Morning/Evening	0.478/0.722	A/C
Gaffey Street at I-110/SR at 47 ramps	Morning/Evening	0.382/0.645	A/B
Gaffey Street at 1st Street	Morning/Evening	1.071/0.900	F/D
Gaffey Street at 7th Street	Morning/Evening	0.845/0.781	D/C
Gaffey Street at 9th Street	Morning/Evening	0.805/0.797	D/C
Gaffey Street at 22nd Street	Morning/Evening	0.441/0.503	A/A
Gaffey Street at 25th Street	Morning/Evening	0.477/0.526	A/A
Alma Street at 22nd Street[c]	Morning/Evening	0.052/0.097	A/A
Alma Street at 25th Street	Morning/Evening	0.329/0.462	A/A
Pacific Avenue at 22nd Street	Morning/Evening	0.401/0.547	A/A
Western Avenue at 25th Street.	Morning/Evening	0.778/0.691	C/B
Whites Point Drive (Project access) at 25th Street[c]	Morning/Evening	0.251/0.327	A/A

Source: Based upon volumes shown on Figures D-5 and D-6, and existing intersection lane configurations.
a Volume-to-capacity ratio
b Level-of-service
c Although stop sign controlled, analyzed for purposes of comparison as if traffic-signal controlled

3.2.3.2 Montgomery Navy Housing

The results of the existing LOS analyses for the 8 study intersections are summarized in Table 3.2-3. Five of the eight intersections currently operate at LOS D or better during both the weekday morning and evening peak hours. At the Figueroa Street and Anaheim Street, Figueroa Place and Anaheim Street, and Western Avenue and Palos Verdes Drive North intersections, LOS F is experienced during one or both of the two weekday peak hours.

Table 3.2-3

Montgomery Navy Housing Existing Weekday Level-of-Service

Intersection	Peak Hour Period	V/C[a]	LOS[b]
Figueroa Street at I-110 North on-ramp[c]	Morning	0.854	D
	Evening	0.631	B
Figueroa Street at Anaheim Street	Morning	1.044	F
	Evening	0.875	D
Figueroa Place at I-110 South off-ramp[c]	Morning	0.385	A
	Evening	0.579	A
Figueroa Place at Anaheim Street	Morning	1.123	F
	Evening	1.348	F
Anaheim Street at Vermont Avenue at Gaffey Street at Palos Verdes Drive North	Morning	0.809	D
	Evening	0.887	D
Western Avenue at Palos Verdes Drive North	Morning	1.049	F
	Evening	1.230	F
Western Avenue at John Montgomery Drive (north)	Morning	0.618	B
	Evening	0.606	B
Gaffey Street at Westmont Drive	Morning	0.459	A
	Evening	0.607	B

Source: Based upon volumes shown on Figures D-3 and D-4, and existing intersection lane configurations.

a Volume-to-capacity ratio

b Level-of-service

c Although stop sign controlled, analyzed for purposes of comparison as if traffic-signal controlled

3.2.3.3 Fort MacArthur Upper Reservation

The results of the existing LOS analyses for the 13 study intersections are summarized in Table 3.2-4. As Table 3.2-2 reveals, 12 of the 13 intersections currently operate at LOS D or better during both the weekday morning and evening peak hours. At the Gaffey Street and 1st Street intersection, however, LOS F is experienced in the weekday morning peak hour, with LOS D occurring in the weekday evening peak hour.

Table 3.2-4

Fort MacArthur Upper Reservation Existing Weekday Level-of-Service

Intersection	Peak Hour Period	V/C[a]	LOS[b]
Gaffey Street at Summerland Avenue	Morning	0.478	A
	Evening	0.722	C
Gaffey Street at I-110/SR at 47 ramps	Morning	0.382	A
	Evening	0.645	B
Gaffey Street at 1st Street	Morning	1.071	F
	Evening	0.900	D
Gaffey Street at 7th Street	Morning	0.845	D
	Evening	0.781	C
Gaffey Street at 9th Street	Morning	0.805	D
	Evening	0.797	C
Gaffey Street at 22nd Street	Morning	0.441	A
	Evening	0.503	A
Gaffey Street at 25th Street	Morning	0.477	A
	Evening	0.526	A
Gaffey Street at 32nd Street[c]	Morning	0.169	A
	Evening	0.201	A
Gaffey Street at Leavenworth Drive[c]	Morning	0.115	A
	Evening	0.168	A
Alma Street at 22nd Street[c]	Morning	0.052	A
	Evening	0.097	A
Alma Street at 25th Street	Morning	0.329	A
	Evening	0.462	A
Alma Street at Meade Drive[c]	Morning	0.054	A
	Evening	0.055	A
Pacific Avenue at 22nd Street	Morning	0.401	A
	Evening	0.547	A

Source: Based upon volumes shown on Figures D-1 and D-2, and existing intersection lane configurations.

a Volume-to-capacity ratio

b Level-of-service

c Although stop sign controlled, analyzed for purposes of comparison as if traffic-signal controlled

3.3 PUBLIC SERVICES

3.3.1 Police

Police services in the community of San Pedro, located within the City of Los Angeles, are provided primarily by the City of Los Angeles Police Department (LAPD), Harbor Patrol, Division 5 (Harbor Division 5 or Division 5). The Harbor Division 5 station, located at 2175 John Gibson Boulevard has jurisdiction over all of the proposed housing sites. Division 5 currently has 210 sworn officers assigned over five watches (Romero, 1994). According to the LAPD, the December 1993 crime statistics for Division 5 indicated a crime rate below the city-wide average. The current (January 1 through August 6, 1994) average response time for emergency calls in the Los Angeles Harbor Area is 6.6 minutes, compared to the city-wide average of 7.3 minutes.

3.3.1.1 White Point Navy Housing

On-site security is provided by a civilian security service on contract to the Navy, with additional back up provided by LAPD. This security arrangement also provides services to the Air Force Pacific Crest housing area adjacent to White Point Navy housing. The proposed housing site at White Point Navy housing is approximately 3 miles from the LAPD Harbor Division 5 station.

3.3.1.2 Montgomery Navy Housing

On-site security is provided by a civilian security service on contract to the Navy, with additional back up provided by LAPD. The proposed housing site at Montgomery Navy housing is approximately 1 mile from the LAPD Harbor Division 5 station.

3.3.1.3 Fort MacArthur Upper Reservation

On-site security at the Fort MacArthur Upper Reservation is provided by the LAUSD (School Security), the City of Los Angeles Department of Recreation and Parks (Park Rangers), and privately contracted security for the Korean Friendship Bell. Additional back up is provided by LAPD. The proposed housing site on the Fort MacArthur Upper Reservation is approximately 2.8 miles from the LAPD Harbor Division 5 station.

Security for the existing Air Force housing sites in the San Pedro is provided by the Air Force who contracts with a civilian security service to provide 24-hour on-site security, with additional support from LAPD who may be called in to assist Air Force security personnel on an as-needed basis. The Fort MacArthur Middle Reservation security office is located on Pacific Avenue at the entrance to the reservation, less than one mile from the proposed housing site on the Fort MacArthur Upper Reservation. The Air Force security office at this location also provides service to Air Force housing areas at Pacific Crest and Pacific Heights.

3.3.2 Fire Protection

The City of Los Angeles Fire Department (LAFD) provides fire protection services to the community of San Pedro. Fire Stations No. 48, 101 and 53 service all of the proposed housing sites. Fire Station No. 48 is a Task Force Station located at 1601 South Grand Avenue. It is staffed by 36 full-time fire fighters and includes a truck and engine company, an aerial ladder and a hazardous materials squad (Ainsworth, 1994). Fire Station No. 101, also a Task Force Station, is located at 1414 25th Street. It includes a single paramedic engine company and is staffed by 12 full-time fire fighters (Ainsworth, 1994). Fire Station No. 53, located at 438 North Mesa Street, has 6 fire fighters, and houses a rescue ambulance (Wortham, 1994).

Water supplies for fire flow to the proposed housing sites are provided by the Los Angeles Department of Water and Power (LADWP) (see Subchapter 3.4.1, Water Supply). LAFD requires a fire flow (the maximum flow of water available to firefighters under emergency demand) of at least 2,500 gallons per minute from three simultaneously flowing fire hydrants.

3.3.2.1 White Point Navy Housing

Fire Station No. 101 has jurisdiction over the White Point Navy housing area (VanVuren, 1995). Fire Station No. 101 is located approximately 0.1 mile from the site. Fire Stations No. 48 and No. 53 would assist Fire Station No. 101 if required. Fire Station No. 48 is located approximately 1.5 miles northeast of the White Point Navy housing area, and Fire Station No. 53 lies approximately two miles to the northeast. Existing fire flow is adequate at the site under current usage.

3.3.2.2 Montgomery Navy Housing

The Montgomery Navy housing area is under the jurisdiction of Fire Station No. 53, with Fire Stations No. 48 and No. 101 acting as backup if required (VanVuren, 1995). Fire Station No. 53 is located approximately 1.5 miles southeast of the Montgomery Navy housing site. Fire Station No. 48 is approximately 2.5 miles south of Montgomery Navy housing area, and Fire Station No. 101 is approximately 3 miles to the southwest. Existing fire flow is adequate at the site under current usage.

3.3.2.3 Fort MacArthur Upper Reservation

Fire Stations No. 48 and 101 have jurisdiction over the Fort MacArthur Upper Reservation housing site. Fire Station No. 48 is located 0.8 miles north of the site and Fire Station No. 101 is located 0.6 miles west of the site. If necessary, Task Force Stations No. 48 and No. 101 can be supported by additional units from Station No. 53, approximately 2.1 miles from the site (Ainsworth, 1994). Existing fire flow is adequate at the site under current usage.

3.3.3 Medical Facilities

San Pedro Peninsula Hospital, affiliated with the Little Company of Mary Hospital in Torrance, is a non-profit community hospital which provides a full range of medical care for patients in the Los Angeles Harbor Area. This facility, located at 1300 West Seventh Street in San Pedro, has a 434-bed capacity, with approximately 1,000 employees and 130 active staff member physicians (Schaefer, 1994). The hospital maintains a 24-hour emergency service.

Bay Harbor Hospital, located at 1437 West Lomita, also provides a full range of medical care for patients in the Los Angeles Harbor Area. This facility has a 150-bed capacity, with approximately 550 employees (Leal, 1995). It also maintains a 24-hour emergency service.

In addition to the two hospitals listed above, there are four other medical facilities serving the San Pedro area. A full-time occupational and maritime health center, located at 593 West 6th Street in San Pedro, provides comprehensive health services for the Los Angeles Harbor community. Other medical facilities in the vicinity include: a recovery center, a nursing facility (Pavilion), and a home care and hospice facility. Paramedic support is primarily provided by LAFD, however, there are also several private companies providing these services (Wortham, 1994).

Active members of the military and their dependents living in military family housing in the area seek treatment at the medical clinic on LAAFB for most routine out-patient medical problems. Emergency or after-hours and weekend treatment is obtained at area hospitals. A medical clinic on Fort MacArthur Middle Reservation provides pediatric and primary care to active duty personnel.

3.3.3.1 White Point Navy Housing

The closest hospital to the White Point Navy housing area is the San Pedro Peninsula Hospital, located approximately 2 miles north of the site.

3.3.3.2 Montgomery Navy Housing

The closest hospitals to the Montgomery Navy housing area are the San Pedro Peninsula Hospital, located approximately 1.8 miles south of the site, and the Bay Harbor Hospital located approximately 2 miles north of the site.

3.3.3.3 Fort MacArthur Upper Reservation

The closest hospital to the Fort MacArthur Upper Reservation housing site is the San Pedro Peninsula Hospital. It is located approximately 1.5 miles northwest of the site.

3.3.4 Schools

Los Angeles Unified School District is responsible for educational facilities in San Pedro. As of fall 1993, the LAUSD operated 659 schools with a total enrollment of 628,000 students (Freedman, 1994).

3.3.4.1 White Point Navy Housing

Public elementary, junior high and senior high schools in the vicinity of the White Point housing site are shown on Figure 3.3-1. Table 3.3-1 depicts the total capacity of

Figure 3.3-1

Schools Near White Point Navy Housing and Fort MacArthur Upper Reservation

Table 3.3-1

Enrollment and Capacity Limits for Schools Servicing the San Pedro Area

School	Enrollment (1993)	Capacity Limits
Point Fermin Elementary	425	500
White Point Elementary	572	738
R.H. Dana Junior High	1,742	1,873
San Pedro Senior High	2,403	3,296
Source: LAUSD, 1994		

these schools and their enrollment levels in 1993. In addition, South Shores and Leland Street Elementary Schools may also be utilized.

3.3.4.2 Montgomery Navy Housing

Public schools in the vicinity of the Montgomery housing site are shown on Figure 3.3-2. Table 3.3-2 depicts the total capacity of schools in the vicinity of the Montgomery housing site and their enrollment levels in 1993.

Table 3.3-2

Enrollment and Capacity Limits for Schools Servicing the Montgomery Housing Site

School	Enrollment (1994)	Capacity Limits
Taper Avenue Elementary	856	1,184
Dodson Middle School	1,701	1,801
Narbonne Nathaniel Senior High	1,977	2,542
San Pedro Senior High	2,392	3,296
Source: LAUSD, 1995		

3.3.4.3 Fort MacArthur Upper Reservation

Schools in the vicinity of the Fort MacArthur Upper Reservation are shown on Table 3.3-1 and Figure 3.3-1. LAUSD currently operates the Angels Gate Continuation High School on the Fort MacArthur Upper Reservation.

3.3.5 Libraries

The San Pedro Regional Library, located at 931 South Gaffey Street, is the closest regional library to the proposed housing and alternative sites. Other libraries in the area include: Palos Verdes Regional Library, Long Beach County Library, and Torrance Regional Library. These libraries belong to the Metropolitan Cooperated Library System (MCLS), which has an interlibrary loan policy and a universal borrowing system. Recently, the residency requirement was eliminated, and there are no fees to use these services (Hsieh, 1994). Smaller branch libraries are also located close to the proposed and alternative housing sites, but they have limited days and hours of operation.

Figure 3.3-2

Schools Near Montgomery Navy Housing Site

3.3.6 Recreation

Two types of recreational opportunities exist within the San Pedro area: (1) resource-oriented opportunities, i.e., those which take place in a natural setting and their value depends primarily on the scenic or natural qualities of the environment; and (2) user-oriented opportunities, such as regional or local parks. Over 300 parks covering in excess of 15,000 acres of land, are located in the Los Angeles region (Conetta, 1994). Facilities in the vicinity of the proposed and alternative housing sites include city, state and county parks. Regional parks in the area include Royal Palms State Beach, Point Fermin Park, Cabrillo Beach, White Point County Beach Park, Friendship Park, Peck Park and Recreation Center, and Angels Gate Park. Community and neighborhood facilities in the area include Averil Park, Alma Community Park, Daniels Field, and Harbor Highlands Park.

3.3.6.1 White Point Navy Housing

Recreational facilities in the White Point Navy housing area are shown on Figure 3.3-3. Recreation and park facilities in the project area are listed on Table 3.3-3. Designated scenic view sites around the White Point Navy housing area include Paseo Del Mar, a segmented part of the bicycle routes in the City of Los Angeles.

Table 3.3-3

Existing City of Los Angeles Recreation and Park Facilities in the Project Area

Park Facility	Size (Acres)
Alma Community Park	2.25
Angels Gate Park/Gaffey Street Pool	66.25
Point Fermin Park	37.31
West Channel/Cabrillo Beach Recreation Area	55.00
White Point County Beach Park	19.50
Averil Park	10.56
Daniels Field	3.60
Friendship Park	123.54
Peck Park and Recreation Center	75.92
Royal Palms State Beach	18.07
Harbor Highlands Park	3.20
TOTAL	**415.20**
Source: Conetta, 1994	

3.3.6.2 Montgomery Navy Housing

Recreational facilities in the Montgomery Navy housing area are shown on Figure 3.3-4. There are no designated scenic view sites in the vicinity.

3.3.6.3 Fort MacArthur Upper Reservation

Recreational facilities in the vicinity of the Fort MacArthur Upper Reservation are shown on Figure 3.3-3 and Table 3.3-3. The Fort MacArthur Upper Reservation housing site also includes an athletic field which is currently used for sporting events, camping,

Figure 3.3-3

Existing Park and Recreational Facilities Near White Point and Fort MacArthur Upper Reservation Housing Sites

Figure 3.3-4

Existing Park and Recreational Facilities Near Montgomery Housing Site

and other activities on a regular basis. The athletic field is used all week long, but is busiest on weekends. The athletic field is maintained by the LAUSD.

Designated scenic view sites in the Fort MacArthur Upper Reservation vicinity include: Paseo Del Mar, Point Fermin, Cabrillo Museum, Osgood-Farley Battery Historic Monument, and Lookout Point.

3.4 UTILITIES

3.4.1 Water Supply

Potable water resources available to the community of San Pedro in the City of Los Angeles, Harbor area, are provided by the LADWP, the Metropolitan Water District of Southern California (Metropolitan), and local wells. LADWP receives water via the Los Angeles Aqueduct from the Owens Valley in Inyo County, and also purchases water from Metropolitan. Metropolitan obtains most of its water from the California State Water Project and from the Colorado River. This water is provided to southern California through Metropolitan's 27 member agencies. LADWP is responsible for ensuring that all regulatory water quality standards are met. The percentage of potable water delivered to the proposed housing sites by various purveyors varies with season and weather conditions.

3.4.1.1 White Point Navy Housing

The White Point Navy housing area is currently partially occupied by Navy personnel and their families. Water mains and facilities have been developed in the area, including a 12-inch water main on 25th Street (Collins, 1995) and a 10-inch main. The existing water supply is adequate under current usage, including fire flow requirements.

3.4.1.2 Montgomery Navy Housing

The Montgomery Navy housing area is located in an area where water mains and facilities have been developed. The site is currently partially occupied by Navy personnel and their families. This site is served by an 8-inch main that also serves the former Taper Avenue Navy housing area (Akhotnikoff, 1995). The existing water supply is adequate under current usage, including fire flow requirements.

3.4.1.3 Fort MacArthur Upper Reservation

The Fort MacArthur Upper Reservation housing site is located in an area where water mains and facilities have been developed. At the present time, a 10-inch water main is located in Alma Street, an 8-inch water main is located in 30th Street, and 6-inch water mains are located in 36th and Roxbury Streets (EP, 1989). These water mains also provide water for firefighting in the area (see Chapter 3.3, Public Services).

3.4.2 Wastewater

Wastewater treatment for the areas encompassing the proposed housing sites is provided by the Los Angeles Department of Public Works (LADPW), Bureau of Sanitation, at the Terminal Island Treatment Plant (TITP). The TITP is located on Terminal Island, at the corner of Terminal Way and Ferry Street. It serves the Harbor area of the City of Los Angeles, including the communities of Wilmington and San Pedro, Terminal Island, and a portion of Harbor City.

TITP currently has an average daily wastewater flow capacity of 30 million gallons per day (mgd). It currently discharges 18 mgd of secondary-treated wastewater effluent into Los Angeles Harbor (LADPW, 1993). Treatment processes include preliminary treatment, primary treatment, and secondary treatment, before discharge to Los Angeles Harbor. Sludge is digested, dewatered, and used for off-site land application through the City's Sludge Management Program. Treated wastewater is discharged through a 48-inch diameter outlet conduit, which connects to a 60-inch diameter outfall that terminates in the harbor. Discharge is by gravity during low-flow and/or low-tide periods, and takes place approximately 25 feet below mean lower low water (MLLW; the average of the lower low tides in a semi-diurnal tide cycle). During high-flow and/or high-tide periods, effluent is pumped through the outfall.

3.4.2.1 White Point Navy Housing

Sewer lines are in place and are currently being utilized at the White Point Navy housing area. The housing area connects to an 8-inch line along Western Avenue, which discharges to the County Sanitation District of Los Angeles County (CSDLAC) Joint Water Pollution Control Plant (JWPCP) in Carson (Garcia, 1995). Existing sewer line capacity is adequate under current usage.

3.4.2.2 Montgomery Navy Housing

Sewer lines are in place and are currently being utilized at the Montgomery Navy housing area. The existing infrastructure, which was installed during construction of the Navy housing, ties into an 8-inch line on Taper Avenue. The Taper Avenue line connects to a 10-inch line in Westmont Avenue, and then to a 21-inch line in Gaffey Street (Garcia, 1995). The sewer main along Gaffey Street ties directly to TITP. Existing sewer line capacity is adequate under current usage.

3.4.2.3 Fort MacArthur Upper Reservation

Sewer lines are present at the Fort MacArthur Upper Reservation housing site. The infrastructure consists of 4-inch and 8-inch lines. The lines tie into 8-inch mains in Alma Street, Meyler Street, Parker Street and Roxbury Street, then connect to an 8-inch main in Paseo Del Mar. The main along Paseo Del Mar ties directly to TITP (EP, 1989).

3.4.3 Solid Waste

The removal and disposal of solid waste in the area is provided by the City of Los Angeles Bureau of Sanitation (Harbor Division) or local private contractors. All solid waste removal and disposal for existing Air Force housing areas is provided by local private contractors on a cost-reimbursable basis. Solid waste is taken to the BKK transfer station located at 3031 I Street in Wilmington. This transfer station is known as the Falcon Refuse Center. Waste is eventually disposed of at the BKK landfill, located at 2210 South Azusa Avenue in West Covina. The BKK landfill is open 6 days per week. Their current permit, which expires in 2006, allows them to take up to 12,000 tons of solid waste per day. BKK landfill currently handles approximately 11,000 tons per day (Cullen, 1995). It has an estimated available capacity of 34.3 million tons (Cullen, 1995). Landfill management in Los Angeles County falls under the Los Angeles County Sanitation District.

Solid waste disposal in the State of California must comply with Assembly Bill (AB) 939. This bill requires cities to recycle 25 percent of their waste by 1995, and 50 percent of solid wastes by the year 2000. The City of Los Angeles has implemented plans to meet these goals.

3.4.4 Energy

Electricity in the area encompassing the proposed and alternative housing sites is supplied by LADWP. The LADWP system produces hydroelectric power at 1.12 billion Kilowatt-hours. The policy of the LADWP is to provide service as needed.

The Southern California Gas Company (SCG) provides natural gas and service to all of southern California, with the exception of the City of Long Beach and San Diego County. SCG is capable of supplying 32,117 million cubic feet (mcf) per year to the City of Los Angeles, inclusive of the Harbor Area (LADPW, 1993).

3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

3.5.1 Hazardous Materials and Hazardous Wastes

3.5.1.1 White Point Navy Housing

Hazardous materials presently used and stored at the White Point Navy housing area to support housing maintenance activities include latex paint, primer, motor oil in quart containers, plumbers putty, and valve grease (Bechtel, 1996). These are stored in locked steel storage cabinets located next to the maintenance building. In addition, housing residents use and store common household cleaners and pesticides. No hazardous materials or hazardous wastes are presently used or stored on the 8-acre site.

3.5.1.2 Montgomery Navy Housing

Hazardous materials presently used and stored at the Montgomery Navy housing area to support housing maintenance activities include latex paint, primer, joint compound, vinyl spackling, various adhesives, tub and tile caulking, cable cleaning solvent, flux paste, leak detection fluid, pipe cement, liquid bleach, gasoline, butane fuel, and charcoal lighter fluid. Small quantities of these hazardous materials are stored in locked steel storage cabinets located next to the maintenance building (Bechtel, 1996). In addition, housing residents use and store common household cleaners and pesticides.

An environmental investigation has been conducted for a parcel of land in the vicinity of the Montgomery housing area (see Subchapter 3.5.4.2).

3.5.1.3 Fort MacArthur Upper Reservation

There are no hazardous materials or wastes currently used, stored, or disposed at the Fort MacArthur Upper Reservation housing site (ES, 1994). However, due to its former use as a military installation, there have been some past uses and disposal of hazardous materials and wastes. Potential hazardous waste sites associated with this previous military use are discussed under the Installation Restoration Program (IRP) (Subchapter 3.5.3.3) and Other Environmental Studies (Subchapter 3.5.4.3).

3.5.2 Installation Environmental Management Programs

The DOD initiates environmental management programs at specific military installations to address environmental concerns. These programs can include inventories of natural resources and recommendations for the protection of those resources within the constraints of the ongoing military operations.

3.5.2.1 White Point Navy Housing

The White Point Navy housing area is an active Navy housing area, but is not considered an actual installation. There are no environmental management programs in effect at this housing area or at the adjacent 8-acre site.

3.5.2.2 Montgomery Navy Housing

The Montgomery Navy housing area is an active Navy housing area, but is not considered an actual installation. There are no environmental management programs in effect at this housing area.

3.5.2.2 Fort MacArthur Upper Reservation

The Upper Reservation of Fort MacArthur is not currently an active military installation. Other than ongoing remediation activities being conducted under the IRP (see Subchapter 3.5.3.3) there are no environmental management programs in effect at the proposed housing site.

3.5.3 Installation Restoration Program

The DOD developed the IRP to identify and evaluate hazardous material disposal sites, control the migration of hazardous contaminants, and control hazards to health or welfare that may have resulted from these past disposal operations. IRP activities are conducted by the military command responsible for a particular installation. In the State of California, the Department of Toxic Substances Control (DTSC) is involved in IRP remediation as the lead state regulatory agency, and the California Regional Water Quality Control Board is a supporting agency. IRP activities are divided into a sequence of investigations which, since 1986, generally follow the US Environmental Protection Agency (EPA) Remedial Investigation/Feasibility Study (RI/FS) process for potential hazardous waste sites. These IRP investigations are briefly described below.

(1) <u>Preliminary Assessment/Site Inspection</u>. The purpose of a Preliminary Assessment/Site Inspection (PA/SI) is to identify past environmentally significant operations that may pose a hazard to, or that may have an adverse effect on, public health, safety, or the environment. The need for further action to confirm or deny an environmental hazard is identified at this stage. If a site requires immediate remedial action, the recommendation may be to proceed directly to Remedial Design and Remedial Action (RD/RA).

(2) <u>Remedial Investigation/Feasibility Study</u>. During a RI/FS, the extent of contamination, waste characteristics, and site characteristics which control contaminant migration are determined. Additional work done during this phase includes gathering data to evaluate specific remedial technologies, and evaluating their effectiveness for treating site specific contamination.

(3) <u>Remedial Design/Remedial Action</u>. A RD/RA investigation includes plans for initiating remedial actions at contaminated sites, and subsequent implementation of the recommended remedial actions.

3.5.3.1 White Point Navy Housing

There are currently no identified IRP sites on the White Point Navy housing area or on the adjacent 8-acre site.

An SI conducted for LAAFB at the White Point Nike Missile Site, directly adjacent to the White Point Navy housing area and 8-acre site, identified seven IRP sites. An additional seven sites were identified in a recent site survey (Bechtel, 1996), as shown on Table 3.5-1.

Table 3.5-1

IRP Sites at the White Point Nike Missile Site

Site Designation	Site Description
LF01	White Point Landfill[a]
LF04	Disposal Area, Pacific Heights
ST17	White Point Septic Tank Drainfield[a]
LF18	White Point Construction Landfill[a]
OT20	White Point PCB Spill, Bldg 1008[a]
ST22	UST, NW Vault Bldg 1031
ST23	UST, NE Vault Bldg 1031
ST24	UST, Bldg 1021
OT25	Nike Silos Bldgs 1019 and 1020
OT26	Nike Propellant Bldg 1018[a]
OT27	Nike Acid Fuel Station, Bldg 1032[a]
OT28	Nike Flammable Storage, Bldg 1033[a]
OT08	White Point PCB Transformer Locations
OT21	Former Fuel Neutralization Pit

[a] IRP site identified in the site inspection.

All sites evaluated in the SI have been funded to meet regulatory requirements for removal action or soil cap, followed by confirmatory sampling. The remaining IRP sites are mix landfills, USTs (all of which have been removed), petroleum spill areas, and PCB spill areas with FY 97 funding for either removal or abandonment in place. The PCB transformer locations, designated as Site OT08, were removed from the IRP list. Intact PCB transformers are not included in the scope of IRP investigations. Additionally, Site OT21, a former fuel neutralization pit, may be collocated with the acid fuel station site and is being studied in FY 97 before a request is submitted by the Air Force to delist the site.

3.5.3.2 Montgomery Navy Housing

There are currently no identified IRP sites on the Montgomery Navy housing area. A tract of land southwest of the Montgomery housing area where the former Fire Fighters School was located (Figure 3.5-2) has been investigated by the Navy and has been classified as an IRP site. The former Fire Fighters School is now designated as Site 5 and Operable Unit (OU) 2. A Removal Site Evaluation (RSE) investigation identified metals and semivolatile organics in OU 2 soils at concentrations above risk-based criteria concentrations. The RSE recommended further action defined in an Engineering Evaluation/Cost Analysis (EE/CA). A draft EE/CA, currently in agency review, recommended a best overall remedial alternative for OU 2 that includes excavation and off-site disposal of impacted soil. The alternative includes groundwater sampling and analysis from existing wells to monitor groundwater quality in the area (Bechtel, 1996).

Figure 3.5-1

Installation Restoration Program Sites at the White Point Nike Missile Site Adjacent to the White Point Housing Site

Figure 3.5-2

Installation Restoration Program Site at the Former Fire Fighters School Adjacent to Montgomery Housing Site

Four IRP sites have been identified on the DLA property northeast of the Montgomery Navy housing site (Figure 3.5-3). The DLA property is used for fuel distribution and storage, and has been in operation since 1943. The sites are three naturally-occurring ravines (Site 3A, 3B, and 6) on the DLA property which were filled with construction debris and uncontrolled wastes (Navy, 1994b) and an oil spill site (Site 4) where the Navy spilled Navy Special Fuel Oil in 1954 and again in the 1960s (Bechtel, 1996). One ravine was filled with waste materials such as oils, paints, and scrap metal, from ships returning from World War II (Navy, 1994b). Drilling mud from oil exploration wells and sludge waste from tank bottoms was also dumped in one ravine. It is possible that radium-painted dials were disposed in these ravines. The ravines were filled with soil during subsequent construction activities. Contaminants of concern include metals, petroleum hydrocarbons, volatile and semivolatile organics, polychlorinated biphenyls (PCBs), and pesticides. A Draft Final RSE Work Plan for Sites 3A, 3B and 6 for conducting a non-time critical removal action is currently under agency review. Following approval of the RSE, an EE/CA will evaluate capping, biological treatment, and/or excavation and disposal as removal actions. Site 4, which is not subject to CERCLA, will be remediated directly.

Further north of the DLA property, as also shown in Figure 3.5-3, three other IRP sites have been designated within the property boundaries of the Palos Verdes Navy housing. Sites 1A, 1B, and 2, which comprise OU 1, are three former ravine areas that also received waste materials from ships after returning, drilling mud from oil fields, and sludge waste from fuel tank bottoms. A Final RSE has been issued for OU 1, which recommended that an EE/CA be prepared. The Draft EE/CA, currently in agency review, recommended a best overall remedial alternative for OU 1 that includes backfilling and grading portions of contaminated site(s) within OU 1 and landscaping areas subject to surface water and wind erosion. The alternative also includes the installation of three groundwater monitoring wells to confirm the absence of contaminants in groundwater (Bechtel, 1996).

3.5.3.3 Fort MacArthur Upper Reservation

Investigations under the IRP have been conducted at Fort MacArthur Upper Reservation to characterize previous Army activities that may have resulted in contaminated areas. The studies that have been implemented under the IRP within the housing site are briefly summarized below. Other environmental studies conducted on the Upper Reservation which are not part of the IRP are described in Subchapter 3.5.4.3.

A PA was conducted on the Upper Reservation, including the housing site, under the guidance of LAAFB in October 1986. The final report of the PA findings was published in January 1988 (ESE, 1988). This study included reviews of existing documentation (historical accounts, operating records, and previous environmental assessments), and interviews with Army and other regulatory personnel. The study identified previous Army operations that had the potential to result in environmental impacts, and identified areas and sites of potential contamination. Recommendations

Figure 3.5-3

Investigation Sites in the Vicinity of the Montgomery Navy Housing

were made for further action at some sites. The PA final report generally concluded that no significant environmental hazards existed at the Upper Reservation (ESE, 1988).

Subsequent to the PA study, additional information became available which identified potential environmentally significant activities and events not specifically addressed in the PA investigation. The Air Force concluded that the original PA needed to be reevaluated, and an addendum to the PA was completed in 1991 (ANL, 1991). The addendum also discussed potential environmental impacts from City of Los Angeles activities since taking over the facility in 1975. The addendum PA addressed the findings of a LAUSD site assessment conducted in 1989 (Lindmark Engineering, 1989) (discussed in Subchapter 3.5.4.3). In general, the addendum PA concluded that the majority of military activities at Fort MacArthur Upper Reservation produced wastes of little environmental consequence, and that the management of those waste materials has not resulted in long-term adverse environmental impacts (ANL, 1991).

Additional investigations have been conducted for specific areas on the Upper Reservation, as recommended in the addendum PA. The first of these within the boundaries of the housing site was a site assessment for the Alma Street and Physical Training Field (also designated the P.T. Field) Landfills in 1993 (Tetra Tech, 1993). The fill material encountered at the Alma Street Landfill had scattered zones and layers of ash, charcoal, and wood fragments. Only native soils were encountered at the P.T. Field Landfill, and artificial fill or debris was not observed in drill cuttings or collected soil samples.

A field investigation of the Alma Street Landfill was conducted in November 1993 (Woodward-Clyde, 1993). This project included a geophysical survey and eight soil borings at the landfill, and geophysical surveys of a circular depression area north of Bldg 982 and the UST near former Bldg 976. The study concluded that the Alma Street Landfill was an engineered fill rather than a landfill.

Based on the results of the investigations on the site, the Air Force has designated six IRP locations within the boundaries of the housing site on the Upper Reservation: USTs near Bldg 880; an abandoned UST at Bldg 976; a former incinerator location; stained soil at the former military auto shop at Bldgs 992 and 994; the Alma Street Landfill; and the P.T. Field Landfill. These locations comprise four actual IRP sites (the incinerator location, Bldg 976, and Bldgs 992 and 994 are part of a general site). These current IRP investigation areas are shown on Figure 3.5-4. These locations and ongoing remediation activities are described below.

(1) Bldg 880 is the Battery Barlow-Saxton. Two 500-gallon capacity USTs were located near Bldg 880. The tanks had been used to store diesel fuel. Soil samples collected in 1989 during a non-IRP investigation indicated high levels of petroleum hydrocarbons (2,900 parts per million [ppm]) which exceed the level (100 ppm) generally considered as contaminated (Lindmark

Figure 3.5-4

Installation Restoration Program Sites at Fort MacArthur Upper Reservation Housing Site

Engineering, 1989). The tanks and associated contaminated soils were subsequently removed, and a report is being prepared documenting these activities. Closure of this site was received from the Regional Water Quality Control Board in late 1995.

(2) Bldg 976 was formerly a gasoline service station. The station was removed, and a new school building was constructed on the site. A 10,000-gallon UST, used for storage of gasoline, was reported to have been filled with concrete and abandoned in place under LAUSD oversite (ESE, 1988). However, more recent studies indicate that the tank was apparently not filled, as originally reported. Soil samples collected in this area had non-detectable levels of petroleum hydrocarbons and volatile organics. The tank was removed and the site was closed in 1995.

(3) An incinerator was operated on the Upper Reservation to burn combustible materials, but there is little available documentation regarding the incinerator. It was demolished sometime in the 1940s, and only the foundation, a concrete pad, and brick debris remain. Shallow soil samples (collected between two and five feet) from this location showed high levels of lead (75 ppm) which exceed the regulatory action level (50 ppm) (Lindmark Engineering, 1989). However, those studies were not sufficient to define the areal extent of contamination. Additional testing of this area was completed. An ecological risk assessment which included this site concluded that the site posed insignificant risk. The DTSC and RWQCB have concurred with this conclusion. A memorandum requesting closure of the site is now being coordinated by the Air Force.

(4) Bldgs 992 and 994 are part of the former Army auto maintenance and auto shop facility. These buildings are currently being used by LAUSD for storage (Bldg 992) and to hold classes in auto mechanics for high school students (Bldg 994). Shallow soil borings to depths of 1.5 feet were drilled in these areas, and samples indicated petroleum hydrocarbon levels of up to 990 (at Bldg 992) to 2,300 ppm (at Bldg 994) (Lindmark Engineering, 1989). The contaminant at Bldg 992 was spilled waste oil, and the high concentration of petroleum hydrocarbons at Bldg 994 was found in oil stained areas near drums and a small (150-gallon) AST containing waste oil (Lindmark Engineering, 1989). The contaminated soil in the areas around these buildings was removed. Additional testing and confirmatory sampling have been completed and closure of this location was received in November 1996.

(5) The Alma Street landfill is located on both sides and beneath the entrance road from Alma Street in the northwest corner of the Upper Reservation. Construction debris has been found in some soil borings down to 10 feet below ground surface. The fill material was encountered between depths of 3 and 12 feet, and included a mix of artificial fill soil, ash, charcoal, and wood fragments (Tetra Tech, 1993). Trace amounts of methane gas and acetone

have also been found in gas samples of this area. Additional testing of this area was completed. An ecological risk assessment which included this site concluded that the site posed insignificant risk. The DTSC and RWQCB have concurred with this conclusion. A memorandum requesting closure of the site is now being coordinated by the Air Force.

(6) A small area on the athletic field known as the P.T. landfill was used between 1968 and 1970 for disposal of trash, construction debris, and ash. Construction debris, rusted nails, rusted metal fragments, and decayed wood was encountered in an area approximately 15 feet long by 10 feet wide. The debris is contained in a layer of soil approximately 1.5 feet thick, and is found 3.5 feet below ground surface. Additional testing of this area was completed. An ecological risk assessment which included this site concluded that the site posed insignificant risk. The DTSC and RWQCB have concurred with this conclusion. A memorandum requesting closure of the site is now being coordinated by the Air Force.

In addition to the IRP locations described above, which are located within the boundaries of the housing site, other IRP sites have been identified on the Upper Reservation. These sites are displayed on Figure 3.5-5. Remediation of these sites is also in progress. The status of the investigations at these sites is summarized on Table 3.5-2.

3.5.4 Other Environmental Studies

In addition to the IRP, other environmental studies and investigations have been conducted at the potential housing sites. The studies have been conducted by various federal and local agencies, and are described below for each proposed housing site.

3.5.4.1 White Point Navy Housing

No environmental investigation sites or locations have been identified within the White Point housing area or on the adjacent 8-acre site.

3.5.4.2 Montgomery Navy Housing

No environmental investigation sites or locations have been identified within the Montgomery housing area. An 8-acre parcel directly southwest of the Montgomery Navy housing was formerly used to train fire fighters from 1944 to 1950 (see Figure 3.5-2). Several structures were located on the parcel, including aboveground and underground storage tanks containing fuel. A softball field occupies the southwest corner of the parcel, but is not being used. The preliminary investigation has indicated elevated levels of semi-volatile organics (Navy, 1994b).

Two sites east of the Montgomery Navy housing area (at the former Taper Avenue Navy housing) have been investigated for potential contamination under the Comprehensive Long-Term Environmental Action Navy (CLEAN) II program administered by Southwest Division Naval Facilities Engineering Command (Figure 3.5-6) (Navy, 1994e). These sites include an area in which unknown operations were

Figure 3.5-5

Installation Restoration Program Sites Outside the Fort MacArthur Upper Reservation Housing Site

Table 3.5-2

Hazardous Waste Sites Outside of the Fort MacArthur Upper Reservation Housing Site

	Location[a]	Suspected Contamination	Status	Estimated Completion
1.	USTs near Battery 241 (Bldg 630)	Petroleum hydrocarbons	Removed	--
2.	ASTs at Battery 241 (Bldg 630)[b]	ASTs formerly contained diesel fuel; contents presently unknown	Abandoned in place (February 1995)	--
3.	Former Target Range	Lead	Ecological risk assessment approved; requesting closure.	December 1996
4.	UST near Bldg 802	Petroleum hydrocarbons	Removed (June 1996)	--
5.	Former UST sites at Battery Merriam-Leary[b]	USTs removed; no closure report found	Further research to determine possible environmental concerns	NA
6.	Former jungle warfare area	Metals	Ecological risk assessment approved; requesting closure.	December 1996
7.	USTs near Battery Osgood Farley (700 series buildings)	Petroleum hydrocarbons	Abandoned in place	--
8.	Area around Bldg 995	Petroleum hydrocarbons	Site closed	--
9.	Area around Bldgs 991 and 993	Petroleum hydrocarbons	Site closed	--

Source: Lambrigger, 1996

a Location displayed on Figure 3.5-2

b Sites not currently designated under IRP

UST underground storage tank

AST aboveground storage tank

NA not available

Figure 3.5-6

Areas of Concern at the Former Taper Avenue Navy Housing Site East of Montgomery Housing Site

conducted, and the southern extension of the South Ravine, an IRP site on the adjacent DLA property (see Subchapter 3.5.3.2).

Aerial photographs taken before development of the former Taper Avenue Navy housing show unknown activities associated with DLA operations on the current northwest corner of the Taper Avenue Navy housing (Navy, 1994e). However, it cannot be determined from the aerial photographs if the suspected operations took place on present day Taper Avenue Navy housing or present day DLA property.

The South Ravine is a former naturally-occurring ravine generally oriented in a northwest-southeast direction. Aerial photographs taken before construction of the former Taper Avenue Navy housing show the ravine extending over the housing site boundary, and that drainage from spill areas was directed toward the former ravine (Navy, 1994e). Potential migration from DLA fuel spills may have occurred into the former ravine, and onto the present location of the former Taper Avenue Navy housing. Soil and groundwater samples were taken at these areas of concern. In addition, several soil and groundwater samples were taken in the vicinity of these locations, within the former Taper Avenue Navy housing, for constituent background levels.

Analytical results for soil samples taken at the former South Ravine area were below federal and state guidelines for semi-volatile organics and petroleum hydrocarbons. One soil sample taken from construction of the monitoring well had an elevated level of petroleum hydrocarbons (62 ppm) (Navy, 1994e), which is below the level generally considered as contaminated. Further observations noted asphaltic material in soil borings as well as organic odors from various sampling locations. Metals analysis for the soil samples were below federal and state guidelines, with the exception of arsenic. Samples taken from the former ravine and from one of the background locations showed elevated levels of arsenic (8.1 ppm and 6.8 ppm, respectively) (Navy, 1994e).

Analytical results of samples collected at the area of unknown operations near the northwest corner of the former Taper Avenue Navy housing were below federal and state guidelines for semi-volatile organics and petroleum hydrocarbons, with the exception of one sample which had elevated levels of petroleum hydrocarbons (778 ppm) (Navy, 1994e). Metals analysis of the soil samples collected from this area were also below federal and state guidelines, with the exception of elevated levels of arsenic and beryllium (28 ppm and 0.75 ppm, respectively) from one soil boring (Navy, 1994e).

Analytical results from groundwater samples indicated semi-volatile organics levels within federal and state guidelines, and metals below California Maximum Contaminant Levels (MCL) for drinking water (Navy, 1994e). However, not all metals are included on the California MCL list. Manganese was detected at a concentration of 230 micrograms per liter (μg/l) in one constructed monitoring well, which is above the California Secondary Drinking Water Standard (Navy, 1994e).

3.5.4.3 Fort MacArthur Upper Reservation

The LAUSD completed an Environmental Site Assessment for the Fort MacArthur Upper Reservation in 1989 (Lindmark Engineering, 1989). This assessment focused on selected areas within the portion of the Upper Reservation occupied by LAUSD. The areas investigated were based on the findings of the original Air Force PA (ESE, 1988). A total of 70 soil borings were drilled at 16 different locations on the Upper Reservation, 14 of which are within the housing site. The findings of this site assessment were referenced and incorporated in subsequent Air Force IRP investigations (described above in Subchapter 3.5.3.3). LAUSD is not believed to have implemented any of the recommendations for additional sampling described in the site assessment; however, some of these recommendations have been implemented under the IRP remediation activities undertaken by the Air Force.

A historical review and preliminary Phase II site assessment of the housing site was conducted in 1994 (Fugro West, 1994). The historical review included a site reconnaissance, interviews with knowledgeable on site personnel, review of previous environmental reports, and a review of historic aerial photographs. The limited site assessment included the excavation of a series of test trenches and test pits to evaluate near surface soils conditions. Samples were collected at the identified IRP sites to further evaluate and characterize the existing conditions. In addition to the previously identified IRP sites, three other sites were studied: a circular depression in the asphalt paving north of Bldg 982; the area around Bldg 906; and an area southwest of Merriam Drive where contaminated soil had been dumped on the ground. Each of these sites is described below.

(1) A circular depression in the asphalt pavement north of Bldg 982 was first identified during an IRP investigation of the nearby Alma Street Landfill (Woodward-Clyde, 1993). This area is approximately 10 to 12 feet in diameter. The depression was excavated and found to be full of debris and trash (Fugro West, 1994). It appears to have been a burn pit approximately 12 feet deep and 8 feet wide. The pit had apparently been filled with a mixture of fill soils, glass, decayed wood, rusted metal, and oxidized ash debris, and then covered with three layers of asphalt paving (Fugro West, 1994).

(2) Bldg 906 was formerly used as a jail, and then as a pesticide storage facility. It is currently used by LAUSD to store miscellaneous materials including blackboards, disassembled metal bleachers, and wood parquet floor. Soil outside of the east side door of the building was noted to be slightly darker in color than the surrounding soil. Samples were collected in this area, and analytical results detected halogenated pesticides below the regulatory action level for soil (Fugro West, 1994).

(3) A small area was identified southwest of Merriam Drive where contaminated soil had been dumped (Fugro West, 1994). This small volume of soil (approximately one cubic yard) was sampled, and analytical results indicated petroleum hydrocarbons (identified as motor oil) at a concentration of 230 ppm, which is above the level generally considered by regulatory agencies to

be contaminated (100 ppm). Low levels of VOCs (ethylbenzene and xylene) which are below state and federal guidelines were also detected. The contamination is believed to be limited to the topsoil, and is not expected to have penetrated into the underlying native soil.

The Fugro West investigation also included a limited asbestos survey and sampling, lead-based paint sampling, a survey of electrical equipment for potential PCB content, and limited radon sampling. Each of these issues are further discussed in Subchapters 3.5.5 through 3.5.10.

3.5.5 Asbestos

Asbestos is a fibrous mineral form of impure magnesium silicate naturally occurring in rocks. Several kinds of asbestos fibers exist, and all are fire resistant and not easily degraded by natural processes. Various types of asbestos fibers have been used for strengthening product material, thermal insulation within a product, thermal or acoustical insulation or decoration on exposed surfaces, and fire protection. Asbestos fibers have been used in various products, including, but not limited to, floor tiles, piping insulation, and roofing materials because of their advantageous characteristics.

Airborne asbestos fibers are hazardous to human health. Asbestos fibers may become airborne when asbestos-containing materials (ACM) become old and friable (easily crumbled), or during renovation/demolition activities such as grinding, sanding, or tearing. If asbestos fibers are inhaled, scarring of the lungs (asbestosis) may occur. Asbestos fibers can cause lung cancer and, in some instances, gastrointestinal cancer.

3.5.5.1 White Point Navy Housing

Preliminary asbestos surveys have been conducted on several units of the White Point housing area (Navy, 1992d). White Point housing contains friable and non-friable ACM. The surveys indicated asbestos in flooring (floor tiles and linoleum), thermal insulation system, plaster, roofing material, and heat reflectors in light fixtures. A survey recommended either the removal or encapsulation (not replacement) of the friable ACM, and a management-in-place program for the nonfriable ACM (Bechtel, 1996).

3.5.5.2 Montgomery Navy Housing

Preliminary asbestos surveys have been conducted on several units of the Montgomery housing area (Navy, 1992d). Asbestos was found in floor tiles and the thermal system insulation. In addition, transite panels can also be found in the housing units. A survey recommended either the removal or replacement of the friable ACM, and a management-in-place program for the nonfriable ACM (Bechtel, 1996). However, 45 of the 245 units have been significantly renovated in recent years. The preliminary survey conducted on one of the renovated units indicated no ACM in the building materials which were sampled.

3.5.5.3 Fort MacArthur Upper Reservation

Many of the buildings on Fort MacArthur Upper Reservation, including those on the housing site, were sided with asbestos-containing composition board (also known as transite siding) sometime after their original construction (ANL, 1991). Visual observations have confirmed the probable presence of asbestos siding on these structures. This siding is generally in good condition. In addition, various reports about construction of the batteries on the Upper Reservation indicate that the power cables were laid in ducts made of transite, an asbestos-containing cement (ANL, 1991). Other suspected ACM which may be in the buildings include floor tiles, piping insulation, and roofing material.

Limited asbestos sampling of buildings on the housing site was conducted as part of a site assessment (Fugro West, 1994). Material sampled included floor tiles, mastic (a paste-like cement), exterior transite shingles, black paper on building walls, floor sheeting, roofing material, drywall, and composite shingle roof materials. Nonfriable transite shingles located on the walls of Bldgs 982 through 994, and nonfriable floor tile and mastic in Bldg 902 were confirmed to contain asbestos.

3.5.6 Pesticide Use

Pesticides consist of various chemicals, including organochlorine and organophosphate, which can cause debilitating injuries to humans if they are improperly applied or misused. Effects on the general population can range from nausea to death. In addition, pesticides may affect animals or plants which are not meant to be destroyed or controlled. The use of pesticides is highly regulated and falls under the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA). In California, FIFRA is implemented through the State of California Environmental Protection Agency (Cal-EPA). Under FIFRA, all pesticides must be registered with Cal-EPA before they may be commercially sold or distributed. Registration includes test data for each pesticide, its purpose, and its effect on the general population and the environment. Through the data provided, Cal-EPA can then conduct a risk-benefit analysis on the use of the pesticide. Other requirements under FIFRA include specifications for applying pesticides, groundwater protection, and other stipulations, creating a tight control on the use of pesticides.

3.5.6.1 White Point Navy Housing

The use of pesticides at the White Point housing area is limited to the interior of buildings (Navy, 1994d). No pesticides or herbicides are stored at the housing areas. Pesticides are applied on the exterior landscaping on an as-needed basis. Pesticides were used but not stored on the adjacent 8-acre site.

3.5.6.2 Montgomery Navy Housing

According to the Facilities and Maintenance Department of the Long Beach Naval Shipyard, which is responsible for Navy housing maintenance contracts, the use of pesticides at the Montgomery housing area is limited to the interior of buildings (Navy, 1994d). No pesticides or herbicides are stored at the housing areas. Pesticides are applied on the exterior landscaping on an as-needed basis.

3.5.6.3 Fort MacArthur Upper Reservation

Normal applications of pesticides were conducted during past military use at the housing site. However, there was no mixing of pesticides at the site, and no bulk disposal or storage of any type of pesticides occurred on site (ESE, 1988). Building 906, which is located within the housing site, is presently being used by LAUSD to store insecticides. One soil sample collected near this building at a depth of one foot contained low levels of three pesticides. The concentrations of all three chemicals detected did not exceed the established regulatory action levels for soil (Fugro West, 1994).

3.5.7 Radon

Radon is a radioactive, gaseous element occurring in air, water, soil, and other media. It is a short-lived decay product produced by the disintegration of the element radium. Radon gas can be found in land contaminated with uranium mine tailings, and near certain naturally-occurring granitic and other rocks which are high in alkalinity. The proximity of fault zones can contribute to increased radon gas emissions; these areas are more likely to release underground radon. Radon can also be found in groundwater. Nearly every state in the United States has areas of high radon levels. Exposure to radon has been linked to increases in the incidence of lung cancer. The current action level recommended by the EPA is 4 picocuries per liter (pCi/l). Southern California has the lowest indoor radon levels in the state; approximately one percent of homes surveyed have indoor radon levels that exceeded the action level (Quinton, 1994).

3.5.7.1 White Point Navy Housing

An initial radon survey was conducted on the White Point housing area in 1991 (Navy, 1994d). Laboratory analysis indicated radon levels below the EPA recommended action level.

3.5.7.2 Montgomery Navy Housing

An initial radon survey was conducted on the Montgomery housing area in 1991 (Navy, 1994d). Laboratory analysis indicated radon levels below the EPA recommended action level.

3.5.7.3 Fort MacArthur Upper Reservation

The geologic formation (Monterey Shale) found on the housing site is not normally associated with radon gas formation. Indoor radon sampling was conducted in 1994 as part of a site assessment (Fugro West, 1994). Laboratory results indicated radon concentrations of up to 1.2 pCi/l, below the EPA recommended action level.

3.5.8 Lead

The metal lead has been used in the past for various products, including water pipes and piping solder (used to connect piping junctions). The most prevalent environmental concern regarding lead is the presence of lead-based paints. Lead-based paints were once used to cover buildings and structures, on both interior and exterior surfaces. Lead was used for pigment enhancement, corrosion protection, and undercoat hiding ability. Removal of old lead-based paint is usually done via sandblasting or other abrasive techniques, resulting in dust contaminated with lead. The dust, in turn, can contaminate surrounding soil or water, or can be transported to neighboring areas by wind. According to the State of California Department of Health Services, soil normally has small amounts of lead in it (approximately 50 ppm), with soil in urbanized areas normally having lead levels up to 200-500 ppm. Lead levels of over 1,000 ppm in soil are considered hazardous waste. Lead toxicity is generally associated with blood disorders and nerve dysfunction. Children are highly susceptible to lead poisoning, which can lead to behavioral and hearing problems. Adults are less prone to lead poisoning.

3.5.8.1 White Point Navy Housing

A preliminary lead survey has been conducted at the White Point housing area, using a portable x-ray fluorescence (XRF) device (Navy, 1993a). The survey indicated the presence of lead-based paint in the housing area. In addition, XRF readings indicated soil contaminated with lead. However, laboratory analysis by atomic absorption spectroscopy (AAS) showed lead levels at insignificant concentrations. Dust wipe samples for lead were below HUD guidelines at the housing area.

Another survey by the Navy found lead-based paint present on numerous surfaces of both exterior and interior components of all residential units. However, overall surface paint conditions are classified as 99 percent intact, with 1 percent considered blistered, cracking, or chaulking (Bechtel, 1996).

3.5.8.2 Montgomery Navy Housing

A preliminary lead survey has been conducted at the Montgomery housing area, using a portable XRF device (Navy, 1993a). The survey indicated the presence of lead-based paint in the housing area. In addition, XRF readings indicated soil contaminated with lead. However, laboratory analysis by AAS showed lead levels at insignificant concentrations. Dust wipe samples for lead were below HUD guidelines at the housing area.

Another survey conducted by the Navy found lead-based paint surface paint conditions to be 98 percent intact, with cracking, flaking, and peeling noted on various exterior components of the units tested. The survey recommended abatement of these areas (Bechtel, 1996).

3.5.8.3 Fort MacArthur Upper Reservation

The majority of the existing buildings on the housing site were constructed prior to or during World War II. The age of construction suggests the use of lead-based paints on the interior and exterior surfaces of these buildings. In addition, communication cables installed on the Upper Reservation for military purposes were wrapped in a lead sheath, to provide mechanical protection (ANL, 1991). Some of these cables were abandoned in place, and in other cases the sheaths tore loose from their cable during attempted removal. Exact records showing which cables were abandoned in place, and which were successfully removed with their lead sheath, are not available (ANL, 1991). It is probable that some communication cable with lead sheathing may be present on the proposed housing site. In addition, lead pipes and lead solder for piping connections probably occur throughout the housing site.

Lead-based paint sampling of buildings on the housing site was conducted in 1994 as part of a site assessment (Fugro West, 1994). Lead content of up to 15.9 percent by weight was identified in the sampled paints.

A portion of the samples taken from the soil in the former incinerator site contained lead above preliminary remediation guidelines. A risk assessment of the localized contamination was performed which concluded that the risk of the lead in the site was insignificant. The DTSC concurred with the closure of the site without further action.

3.5.9 Ordnance

The primary environmental and public health concern regarding ordnance is unexploded shells, bombs, gunpowder, or other forms of ammunition. Proper ordnance disposal is critical in protecting human health and welfare, as well as local animal and plant life. In certain military installations, it was common practice to bury any ordnance which was surplus or may not have detonated. Over the years, buried ordnance may become very unstable and prone to detonation. Ordnance disposal sites present extremely dangerous conditions, especially during soil excavation or trenching activities.

3.5.9.1 White Point Navy Housing

No forms of ordnance were ever used or stored on the White Point housing area and there are currently no forms of ordnance at the housing area (Rollefson, 1995). Abandoned former military structures (small, low, concrete, gun emplacements) are located on the undeveloped 8-acre hillside south of the housing area.

3.5.9.2 Montgomery Navy Housing

No forms of ordnance were ever used or stored on the Montgomery housing area and there are currently no forms of ordnance at the housing area (Rollefson, 1995).

3.5.9.3 Fort MacArthur Upper Reservation

Three gun batteries, including one on the housing site, were constructed on the Fort MacArthur Upper Reservation in the 1910s. Explosive powders and artillery shells were stored in underground vaults near each artillery battery when the batteries were active. Once the artillery pieces were removed during World War II, existing powder stocks were burned on site. Missile system batteries were also constructed on the Upper Reservation, though not at the housing site. The missile system was removed when it became obsolete. Other types of ordnance, in the form of small caliber rifles and handguns, were also periodically stored and used on the Upper Reservation. After release of the property by the DOD, all types of ordnance were removed. Records indicate that there was no disposal of ordnance on the site. Currently, no forms of ordnance are located on the Fort MacArthur Upper Reservation, including the housing site.

3.5.10 Polychlorinated Biphenyls

Polychlorinated biphenyls are normally associated with electrical equipment, such as transformers. Used as a dielectric fluid, PCBs are sealed inside the transformer. Dielectric fluid is used for electrical insulation, sustaining the electric field with minimal power dissipation. The manufacture of PCBs was banned under the Toxic Substances Control Act (TCSA) in 1978, but TSCA does not ban the use of PCBs as long as they are completely enclosed, such as in a transformer. Additional requirements under TSCA include an inventory of PCB-containing transformers and proper labeling. Exposure to PCBs and their by-products have been linked to chloracne (a skin disorder), bleeding and neurological disorders, liver damage, spontaneous abortions, human embryo deformation, cancer, and death.

3.5.10.1 White Point Navy Housing

No extensive PCB surveys have been done on the White Point housing area. This housing area was constructed in the 1960s, before the ban on manufacture of PCBs.

During a recent inspection of the White Point housing area in conjunction with the preparation of an Environmental Baseline Survey (EBS) for the property, no transformers were observed (Bechtel, 1996).

3.5.10.2 Montgomery Navy Housing

No extensive PCB surveys have been done on the Montgomery housing area. This housing area was constructed in the 1960s, before the ban on manufacture of PCBs.

During a recent inspection of the Montgomery housing area in conjunction with the preparation of an EBS for the property, no transformers were observed (Bechtel, 1996).

3.5.10.3 Fort MacArthur Upper Reservation

An inventory of transformers on the Fort MacArthur Upper Reservation was completed in the original PA (ESE, 1988). Both pole-mounted electrical transformers, and transformers located within the batteries, were identified. Maintenance of these transformers was the responsibility of the Army during previous military occupation of the site. No maintenance records are available for the transformers, including PCB use or replacement, during Army responsibility. Upon release of the property to LAUSD in 1974, the LADWP became the agency responsible for upkeep and maintenance for the transformers.

One incident of transformer failure and release of dielectric fluid has been recorded. It was from a pole-mounted transformer near Building 902 (ESE, 1988). The spill occurred in 1982, after responsibility for the Upper Reservation had been transferred from the Army to the LAUSD. The contaminated soil was remediated by LAUSD, and no PCB-contamination was subsequently found in the soil at that location (Lindmark Engineering, 1989).

The PA noted that, in the absence of manufacturer specifications and reliable maintenance records, the pole-mounted transformers (all of which were installed between about 1964 to 1969) should be considered to potentially contain PCB dielectric fluids (ESE, 1988). Testing of the dielectric fluids, and labeling and/or disposal of the transformers has been recommended in the previous PAs for the Upper Reservation (ESE, 1988; ANL, 1991), and was identified as a mitigation measure in the EIR prepared for the LAUSD Educational Complex on the Upper Reservation (EP, 1989). It is not known if all of the electrical transformers on the housing site have been tested and labeled.

Transformers originally installed in the batteries on the Fort MacArthur Upper Reservation, including Battery Barlow-Saxton, are still present in those facilities. Three additional transformers were installed in the Battery Barlow-Saxton in approximately 1968, which are currently used by LAUSD (ANL, 1991). Although the original transformers in the battery are of 1918 vintage (before PCBs were used as dielectric fluid), the presence or absence of PCBs in the transformers cannot be ascertained in the absence of maintenance records (ANL, 1991). Lindmark Engineering (1989) describes six transformers in the electrical equipment room of the battery as containing PCBs. Samples were collected from soils borings drilled beneath the electrical equipment room as part of the 1989 site assessment. No PCB-contamination was found in the soil (Lindmark Engineering, 1989).

Electrical equipment within the boundaries of the housing site were surveyed for PCBs as part of a site assessment (Fugro West, 1994). Fluorescent light fixtures were observed in several of the buildings. Fluorescent light ballasts manufactured prior to 1979 are known to contain PCBs in the dielectric fluid. Fugro West estimates that approximately 210 PCB-containing fluorescent light ballasts are present in buildings on the housing site. A random check of these fixtures did not reveal labeling regarding PCB content (Fugro West, 1994).

3.6 SOILS AND GEOLOGY

3.6.1 Topography and Stratigraphy

The Los Angeles Basin is a large alluvial basin characterized by relatively low relief and natural slopes with generally less than a 5 percent grade. It is approximately 50 miles long and 20 miles wide, and is bordered on the north by the San Gabriel Mountains, the west by the Pacific Ocean, the south by the Santa Ana Mountains, and the east by the convergence of the San Gabriel and Santa Ana Mountains. Major drainage for the basin is provided by three intermittent rivers: the Los Angeles, San Gabriel and Santa Ana Rivers.

Uncompacted and partially compacted marine and non-marine sediments fill the Los Angeles Basin. These deposits are underlain by volcanic rocks and marine sedimentary rocks. Metamorphic rocks of the Catalina Schist comprise the basement complex. These rocks and sediments are summarized below, beginning with the oldest rocks and concluding with the youngest sediments. A generalized stratigraphic section of the Palos Verdes Hills is shown on Figure 3.6-1. Surficial geology of the San Pedro area is displayed on Figure 3.6-2.

The Catalina Schist, possibly Jurassic to late Cretaceous in age (65 to 195 million years ago) underlies much of the Los Angeles Basin. In certain areas, the Catalina Schist is overlain by as much as 20,000 feet of Miocene (5 to 22 million years ago) and younger sedimentary and volcanic rocks (Yerkes et al., 1965). In the Palos Verdes Hills area, the metamorphic basement is overlain by the Altamira Member of the Miocene Monterey Formation. This formation is comprised of cherty (silica-containing), phosphatic (phosphate-containing), and tuffaceous (compacted volcanic ash) shales. It is as much as 2,000 feet thick immediately north of the site. Volcanic rocks, including the Miraleste Tuff, Portuguese Tuff, and tuffaceous shales of the Altamira Member, have eroded into bentonite (clay) layers, which are locally exposed in the Palos Verdes Hills and surrounding areas.

In the Los Angeles Basin, the Pliocene (2 to 5 million years ago) is represented by the Repetto and Pico Formations. The lower Pliocene Repetto Formation, comprised primarily of massive siltstone, ranges in thickness from 1,000 to 4,000 feet. Sedimentary rocks of the upper Pliocene Pico Formation, overlie the Repetto Formation. The Pico Formation, comprised primarily of siltstone and sandstone, reaches a maximum thickness of about 1,000 feet (Woodring et al., 1946; Yerkes et al., 1965).

Marine gravels, sands, silts and clays comprise the overlying Pleistocene age (10,000 to 2 million years ago) San Pedro Formation. They reach about 1,000 feet in thickness. Unnamed upper Pleistocene marine deposits unconformably overlie the San Pedro Formation. These deposits, which consist of shallow marine sands and silts, reach a maximum thickness of 150 to 250 feet.

Figure 3.6-1

Generalized Stratigraphic Section in the Palos Verdes Hills

Figure 3.6-2

Geologic Map of the Palos Verdes Hills

3.6.1.1 White Point Navy Housing

The White Point Navy housing area and adjacent 8-acre parcel are located on the southeastern portion of the Palos Verdes Peninsula. They are situated between two level marine terraces on the southwest side of the Palos Verdes hills. Elevation at the White Point housing area is approximately 320 feet above mean sea level (MSL). The southern boundary of the housing area site ends abruptly in a steep slope. The local vertical relief of this slope is estimated at approximately 60 feet. The average angle of the slope is estimated to be 50 degrees (1.2 feet vertical for every 1 foot horizontal). A series of drainage canals and catch basins are present at the foot of this slope. The ground surface of the site in general slopes gently to the south.

Elevations at the adjacent 8 acre site south of the White Point Navy housing area range from approximately 250 to 350 feet above MSL, and maximum relief within the limits of the housing site is 100 feet. The natural mostly south facing slopes range from angles of about 18 to 26 degrees (1 foot vertical to 3 to 2 feet horizontal) (Coleman Geotechnical, 1996).

Surficial geology at the White Point housing area and adjacent 8-acre site consists primarily of slopewash deposits, identified as dark brown to black clayey silt (Engineering Geology Consultants, 1974; Converse Consultants, 1984b, Coleman Geotechnical, 1996). The slopewash has an average thickness of 3 to 4 feet (Coleman Geotechnical, 1996). During the original geotechnical evaluations performed prior to construction of the White Point housing area, an old dump or uncompacted fill was observed in a drainage course near the eastern boundary of the housing area (Engineering Geology Consultants, 1974). This area was not noted during a 1995 site reconnaissance, and it is presumed that this area was graded during construction of the housing. During a recent geotechnical evaluation of the adjacent 8 acre site, artificial fill was present in borings to at least 30 feet deep (Coleman Geotechnical, 1996).

Bedrock at the White Point housing area and adjacent 8-acre site consists of interbedded layers of shale, sandstone, and siltstone of the Monterey Formation (Altamira Member). Bedding is generally thin with occasional beds up to 1.5 feet thick. Bedding planes in the Altamira Shale are inferred to dip between 5 and 15 degrees to the south (Engineering Geology Consultants, 1974). Fracturing has been caused by stress from regional folding (see discussion in Subchapter 3.6.2). Seams of gypsum and expansive clay (bentonite) occur locally within the bedrock.

Marine terrace deposits, colluvium (loose material derived from the weathering of bedrock), and artificial fill (deposited by man) overlie the Monterey Formation at the site. Terrace deposits consist of sand with shells and shell fragments. They range in thickness from 15 to 25+ feet (Engineering Geology Consultants, 1974).

A geotechnical investigation of the adjacent 8-acre site included subsurface borings to depths of 46 feet bgs. No groundwater was encountered during this investigation (Coleman Geotechnical, 1996).

3.6.1.2 Montgomery Navy Housing

The Montgomery Navy housing area is located in the northern portion of the community of San Pedro. The site is located in generally level area northeast of the Palos Verdes Hills. Elevation at the Montgomery housing area is approximately 100 feet above MSL. The DLA tank farm is located on a hill immediately adjacent to the northern boundary of the housing area. During a site reconnaissance in February 1995, local vertical relief of the hill was estimated at approximately 50 feet. The average slope of the hill was estimated to be 45 degrees. The ground surface of the site in general slopes gently to the south.

Surficial geology at the site consists of nonmarine terrace deposits of Late Pleistocene age. These terrace deposits overlie the San Pedro Formation. They are derived from the weathering of surrounding hills, and are comprised of dense to very dense fine-grained silty sand and clayey sand mixtures. In addition to the nonmarine terrace deposits, artificial fill (consisting of silty and clayey sand mixed with debris and construction rubble) has also been placed throughout the site (Navy, 1994d).

During drilling activities associated with a groundwater sampling project at the former Taper Avenue Navy housing site, groundwater was encountered at approximately 70 to 75 feet bgs. These water level measurements, converted to water elevations above MSL, were used to determine that groundwater flow is to the southeast (Navy, 1994d).

3.6.1.3 Fort MacArthur Upper Reservation

The Fort MacArthur Upper Reservation is located on the southeastern portion of the Palos Verdes Peninsula, north of Point Fermin. It is situated between two relatively level marine terraces on the southwest side of the Palos Verdes Hills. The area is characterized by moderate slopes dipping toward the Pacific Ocean. Elevations at the site range from approximately 160 to 290 feet above MSL, and maximum relief within the limits of the housing site is 130 feet. Topography at the site (Figure 3.6-3) ranges from relatively flat to very steeply sloping. The athletic field at the center of the site is nearly horizontal, while the steepest slopes at the site near Gaffey Street approach 100 percent (45 degrees, or one foot vertical for every one foot horizontal). The topography of the Fort MacArthur Upper Reservation was extensively altered during previous military usage of the area. This alteration includes grading of the present athletic field, which was previously used for military training exercises. This grading filled a northwest-trending drainage, and created fills up to 15 feet thick (Fugro West, 1995). Average slope of the site is approximately 14 degrees (one foot vertical for every four feet horizontal).

Bedrock at the Fort MacArthur Upper Reservation consists of interbedded layers of shale, sandstone, and siltstone of the Monterey Formation (Altamira Member). It is found at depths between 0.5 to 11.5 feet below ground surface (bgs), and extends to depths of 2,000 feet immediately north of the site (ESE, 1988). Bedding is generally thin, with occasional beds up to 1.5 feet thick. Bedding planes in the Altamira Shale at the site generally dip between 10 and 30 degrees to the east (Converse Consultants, 1995). Fracturing has been caused by stress from regional folding (see discussion in Subchapter

Figure 3.6-3

Topographic Map of Fort MacArthur Upper Reservation Housing Site

3.6.2). Seams of gypsum and expansive clay (bentonite) occur locally within the bedrock.

Marine terrace deposits, colluvium (loose material derived from the weathering of bedrock), and artificial fill (deposited by man) overlie the Monterey Formation at the site. Terrace deposits consist of sand with shells and shell fragments. They range in thickness from 0.5 to 5.5 feet (ESE, 1988). Colluvial soils, which consist of clay and silt, were encountered at various locations on the site. They ranged in thickness from less than 1 foot to approximately 12 feet. Colluvial soils are generally absent in the area near the crest of the hill located east of Meade Drive and southwest of Leavenworth Drive (Fugro West, 1995). Artificial fill is present in area of the athletic field, at Battery Barlow-Saxton, and in other localized areas on the site. This fill generally consists of clay and silt, but debris, including metal, glass, concrete, and asphalt, was encountered in the fill near Alma Street (see discussion in Subchapter 3.5.2). Thickness of the fill ranged from less than 5 feet to approximately 16 feet, with the thickest fill sequence in the Battery Barlow-Saxton area (Fugro West, 1995).

Site investigations have been performed at the Fort MacArthur Upper Reservation as part of the IRP (ESE, 1988). These investigations included subsurface borings to depths of 45 feet bgs (see Subchapter 3.5.2). No groundwater was encountered during these investigations. A geotechnical study was also completed for the Fort MacArthur Upper Reservation, and is referenced in this chapter (Fugro West, 1995).

3.6.2 Regional Structure

The Palos Verdes Hills are one of three major uplift areas in the Los Angeles Basin. This uplift, or anticline, is associated with regional compression between the Palos Verdes Hills and San Andreas Fault Zone, and vertical uplift along the Palos Verdes Fault. The Palos Verdes anticline has a total of about 1.8 miles of vertical structural relief (the difference in elevation between the highest and lowest points of the same rock layer) (Davis et al., 1989). Geologic relationships suggest that major compression started between early and late Pliocene time (2.2 to 4.0 million years ago) (Davis et al., 1989). Regional bedding planes in the area exhibit shallow dips (the angles that sedimentary rock layers make from the horizontal) between 10 and 20 degrees to the northeast (Woodring et al., 1946).

3.6.2.1 White Point Navy Housing

The White Point housing area and adjacent 8-acre site is located on the southwest flank of the Palos Verdes anticline. According to a geotechnical evaluation performed prior to construction of the White Point housing area, there are two distinct structural types beneath the White Point housing area. The north, central, and southeastern portions of the site are underlain by bedrock gently dipping to the south or southwest at angles between 5 and 15 degrees. In contrast, bedrock beneath the southwestern portion of the site is intricately folded and sheared (Engineering Geology Consultants, 1974).

3.6.2.2 Montgomery Navy Housing

The Montgomery housing site is located on the northeast flank of the Palos Verdes anticline. Beds in this area generally dip northeast toward the Palos Verdes Fault Zone. Bedding planes in the vicinity of the Montgomery housing site exhibit dips between 10 and 40 degrees to the northeast (Woodring et al., 1946).

3.6.2.3 Fort MacArthur Upper Reservation

The crest of the Palos Verdes anticline trends in a northwest-southeast direction, and passes nearby or underneath the Fort MacArthur Upper Reservation. Bedding planes at, and in the immediate vicinity of, the housing site are extensively deformed, and have variable dips. Measured bedding planes at the Fort MacArthur Upper Reservation housing site range between 10 and 35 degrees, dipping towards the east, northeast, or southeast (Fugro West, 1995; Converse Consultants, 1995).

3.6.3 Soils and Sediments

The types of soils and sediments present at a site can limit or restrict its suitability for certain uses, or require the use of specific engineering measures. The primary factors of concern for the soils in the region are their erosion hazard, shrink-swell potential, and potential use as farmland.

Various factors, including soil permeability, composition, degree of compaction, and depth, degree of slope, and amount and type of vegetative cover, can affect the rate at which wind and water will erode soil cover. Soils can be generally classified as to their erosion hazard (see SCS, 1969), and site-specific geotechnical and soil investigations can determine the specific hazard at a given location.

Shrink-swell potential is the characteristic of certain soils to swell as water content increases, and to shrink as water content decreases. This is also known as a soil's expansion potential. In general, soils with a large clay content have a high shrink-swell potential, but the type of clay can be more important than the amount. Highly expansive soils can cause land slippage and structural damage to foundations, roads, and other engineered structures.

An important aspect of soils is their fertility and potential use for agricultural production. Agricultural production in the southern California region has declined rapidly during the last 50 years, primarily the result of rural to urban land use changes. The US Department of Agriculture Soil Conservation Service (SCS) classifies soils that have a high fertility, are irrigated, and have been used in the recent past for agriculture as Prime Farmland soils. The State of California also classifies soils which meet certain criteria as Statewide Important soils.

3.6.3.1 White Point Navy Housing

In general, soils at the White Point housing area and adjacent 8-acre site are of the Altamont-Diablo Association (SCS, 1969). These soils are well drained, with a slow soil permeability. They consist of surface clay layers, underlain by calcareous clay subsoil and partially weathered calcareous soft shale or sandstone. The erosion hazard of these soils is moderate to high. The shrink-swell potential for these soils is high (SCS, 1969). Laboratory testing of the soils at the adjacent 8-acre site indicates a medium to very high expansion potential (Coleman Geotechnical, 1996).

The White Point housing area is developed, the soils are not irrigated, and the land has not been used for the production of agricultural crops in the past three years. The adjacent 8-acre site is not irrigated and has not been farmed in the past three years. Therefore, although the inherent fertility of the soil is high (SCS, 1969), the soils are not considered Prime Farmland or Statewide Important soils (Downie, 1994).

3.6.3.2 Montgomery Navy Housing

In general, soils at the Montgomery housing site are of the Ramona-Placentia Association (SCS, 1969). These soils are moderately to well drained, and have slow to very slow soil permeability. They consist of a loam or sandy loam in surface layers, but at depth can be underlain by a dense clay loam or coarse sandy loam. The erosion hazard of these soils is moderate. The shrink-swell potential for these soils is high (SCS, 1969).

The Montgomery housing area is developed, the soils are not irrigated, and the land has not been used for the production of agricultural crops in the past three years. Therefore, although the inherent fertility of the soil is high (SCS, 1969), the soils are not considered Prime Farmland or Statewide Important soils (Downie, 1994).

3.6.3.3 Fort MacArthur Upper Reservation

Surface soils and sediments at the housing site consist of clayey colluvial soils and artificial fill. These soils are loose to moderately compacted. The depth of surficial soil ranges from less than 1 foot to approximately 12 feet bgs (Fugro West, 1995), with an average depth of 4 feet bgs (ESE, 1988). The erosion hazard of the soils at the housing site is slight (SCS, 1969). Laboratory testing of the soils indicates a high to very high expansion potential (Fugro West, 1995). The soils have been periodically disked and plowed to control the grass and weed growth.

Soils at the Fort MacArthur Upper Reservation housing site are not irrigated and have not been farmed in the past three years. Although their inherent fertility is considered high (SCS, 1969), they are not classified as Prime Farmland or Statewide Important soils (Downie, 1994).

3.6.4 Faulting and Seismicity

Faults are fractures or lines of weakness in the earth's crust, along which rocks on one side of the fault are offset relative to the same rocks on the other side of the fault. Fault descriptions, such as "right lateral," "normal," "reverse," or "oblique," refer to the direction of fault motion. Sudden movement along a fault results in an earthquake, and the resulting ground motion can cause moderate to extensive damage to engineered structures. The size of an earthquake can be represented either by its magnitude or intensity.

Earthquake magnitude (M) is a logarithmic measure of the amplitude of seismic waves, which represent the amount of energy released at an earthquake's epicenter. In general, earthquakes between M 6.0 to 6.9 are classified as "moderate," between M 7.0 and 7.9 are "major," and M 8.0 and larger are "great." Magnitude values are calculated based upon several formulas. The most common of these is the Richter Magnitude, which is used in this document except where noted. Seismologists also use a Moment Magnitude scale for a more accurate measurement of major and great earthquakes.

Earthquake-induced ground motion intensity is dependent upon type of fault movement producing the earthquake, earthquake magnitude, depth of the earthquake, distance between the site and the epicenter, and the nature of the earth materials underlying the site. The Modified Mercalli scale is a qualitative description of the intensity of ground motion generated by an earthquake at a given location (CDMG, 1979). A comparison of earthquake magnitude and Modified Mercalli intensity at an earthquake epicenter is shown on Table 3.6-1. The intensity of earthquake-induced ground motions can also be described using peak site ground accelerations, represented as a fraction of the acceleration of gravity (g). While an earthquake has only one magnitude, it can have many intensities, which generally decrease with distance from the epicenter.

In southern California, seismicity is dominated by the intersection of the northwest trending San Andreas Fault System and the east-west trending faults that are part of the Transverse Ranges Fault System. Historic earthquakes recorded in the Los Angeles region are listed on Table 3.6-2. There are several major and numerous smaller faults located throughout the Los Angeles Basin. Faults which have had surface displacement within the last 11,000 years (Holocene) are considered "active" by the State of California; "potentially active" faults show evidence of surface displacement within the last 1.6 million years (Quaternary) (Hart, 1992). The major active and potentially active faults which have been identified in the Los Angeles region are shown on Figure 3.6-4, and are described in Table 3.6-3. The Newport-Inglewood, Whittier, Elsinore, Raymond, San Fernando, San Andreas, and San Jacinto Faults are designated fault-rupture hazard zones under the Alquist-Priolo Earthquake Fault Zoning Act (formerly the Special Studies Act) of 1972 (California Public Resources Code, 1972; Hart, 1992). Under this act, local government agencies must regulate specified projects within a fault-rupture hazard zone, and geologic investigations are required to locate active fault traces prior to development. Local government agencies also evaluate seismic risk, and often require additional planning efforts.

3.6.4.1 White Point Navy Housing

The Cabrillo, Palos Verdes, and Newport-Inglewood Fault Zones are located within 10 miles of the White Point Navy housing area and adjacent 8-acre area (Table 3.6-4). The housing area and adjacent 8-acre site are located approximately 2.5 miles southwest of the Palos Verdes Fault Zone and 1 mile southwest of the Cabrillo Fault. Due to their proximity, even a moderate earthquake along one of these faults could result in strong to intense ground motion at the site. Table 3.6-4 presents estimated peak

Table 3.6-1

Comparison of Magnitude and Intensity at an Earthquake Epicenter

Richter Magnitude	Expected Modified Mercalli Maximum Intensity	Effects and Consequences
2	I-II	Usually detected only by instruments
3	III	Felt indoors
4	IV-V	Felt by most people; slight damage
5	VI-VII	Felt by all; many frightened and run outdoors; damage minor to moderate
6	VII-VIII	Everybody runs outdoors; damage moderate to major
7	IX-X	Major damage
8	X-XII	Total and major damages

Source: modified from CDMG, 1979

Table 3.6-2

Large Earthquakes Recorded in the Los Angeles Region

Date	Magnitude (Richter)	Fault
17 Jan 1994	6.8[a]	Eastern extension of Oak Ridge Fault System (also known as West San Fernando Thrust Ramp)
28 Jun 1992	6.6[a]	Unnamed fault in Big Bear area
28 Jun 1992	7.5[a]	Camp Rock-Emerson-Johnson Valley Faults
22 Apr 1992	6.1[a]	Camp Rock-Emerson-Johnson Valley Faults
28 Jun 1991	5.8	Sierra Madre Fault
1 Oct 1987	5.9	Elysian Park Fold and Thrust Belt
9 Feb 1971	6.4	San Fernando-Sunland Fault
21 Jul 1952	7.7	White Wolf Fault
1 Jul 1941	5.9	Undetermined Fault in Santa Barbara Channel
10 Mar 1933	6.3	Newport Inglewood Fault Zone
4 Nov 1927	7.5	Undetermined fault offshore Point Arguello
29 Jun 1925	6.3	Undetermined fault in Santa Barbara Channel
23 Jul 1923	6.3	Claremont Fault (San Jacinto Fault Zone)
21 Apr 1918	6.8	Claremont Fault (San Jacinto Fault Zone)
23 Oct 1916	6.0[b]	Tejon Pass area (San Andreas Fault Zone, suspected)
25 Dec 1899	6.6[b]	Claremont Fault (San Jacinto Fault Zone)
4 Apr 1893	6.0[b]	San Fernando-Santa Susana Fault
9 Jan 1857	8.3+[b]	San Andreas Fault Zone
8 Dec 1812	7.0[b]	San Andreas Fault Zone (Newport-Inglewood Fault Zone also suspected)
21 Dec 1812	7.1[b]	Undetermined Fault in Santa Barbara Channel
28 Jul 1769	6.75[b]	San Fernando-Santa Susana Fault (suspected)

[a] Moment magnitude
[b] Estimated magnitude

Figure 3.6-4

Major Quaternary (Active and Potentially Active) Faults in the Los Angeles Region

Table 3.6-3

Fault Zone Descriptions

Seismic Structure	Description
Cabrillo Fault	The Cabrillo Fault is a short, northwest-trending fault that parallels the Palos Verdes Fault Zone. As mapped by Dames and Moore and MESA-2 (1983), it is a zone of disruption up to 1,640 feet wide. It extends from central Palos Verdes Peninsula to a point offshore where it joins, or is cut by, the Palos Verdes Fault. The mapped onshore extent of this fault is approximately five miles, but it is not well exposed and is obscured by development and urbanization. Onshore, Late Pleistocene activity has been documented by stratigraphic offsets observed in terrace deposits at Cabrillo Beack (Fisher et al., 1987). However, evidence of Holocene activity has been documented for the offshore portion of this fault. This fault is listed as active in the Los Angeles County seismic safety element based on the offshore evidence of Holocene activity. Scattered small earthquakes have been attributed to this fault (Ziony and Yerkes, 1985).
Elysian Park and Compton Blind Thrust Ramps	These blind thrust (low angle fault planes at depth which do not reach the ground surface) faults planes or ramps underlie the most densely urbanized part of the Los Angeles Basin, including downtown Los Angeles. Their existence is inferred from geophysical and geomorphological evidence and the clustering of data from deep earthquakes. The Elysian Park and Compton (formerly Torrance-Wilmington) thrust ramps are connected by a mid-basin segment to form a complex group of hidden faults known as the Los Angeles Basin Fault System (Dolan et al., 1995). The Whittier Fault and the northern Newport-Inglewood Fault Zone may interact with this thrust system at depth. There is insufficient available data regarding these blind thrust ramps to calculate the maximum probable, credible, and estimated peak ground acceleration parameters in the text tables. However, these faults are thought to be capable of generating earthquakes of M 7.2 to 7.6 (Dolan et al., 1995), resulting strong to intense ground motion throughout the Los Angeles Basin. The largest earthquake attributed to these thrust ramps is the M 5.9 Whittier Narrows earthquake of 1987.
Newport-Inglewood Fault Zone	This fault zone manifests itself as a line of positive topographic features or hills underlain by producing oil fields. Some authors, including Barrows (1974) believe that this fault zone is the northwest extension of the South Coast Offshore Fault, and possibly the Rose Canyon Fault in San Diego, which would give this fault zone a total extent of 125 miles. The fault zone can be separated into northern and southern segments based on differences in slip rate and structural style (Dolan et al., 1995). The zone exhibits right-lateral movement, with the exception of two fault segments at Dominguez Hills and Seal Beach, where evidence suggests left-lateral displacement. Onshore, the fault zone varies between 0.5 and 3 miles in width; offshore width of the zone varies between 0.5 and 2 miles. Surface rupture on this zone has occurred in late Quaternary, Holocene, and possibly historic time (Ziony and Yerkes, 1985). Numerous small and moderate earthquakes have been attributed to this zone, the largest being a M 6.3 event in 1933.

Table 3.6-3 (Cont'd)

Seismic Structure	Description
Palos Verdes Fault Zone	This northwest-trending fault zone separates the Palos Verdes Hills from the rest of the Los Angeles Basin. The zone is comprised of several en echelon (in a step-like pattern) fault strands which exhibit primarily reverse or reverse right-oblique movement. The onshore segment of the fault zone is approximately 9 miles, but it is poorly exposed due to extensive development. Offshore, the fault is approximately 0.5 miles wide. As much as 6,500 feet of vertical offset has been observed on this fault zone (Ziony et al., 1974). Holocene and late Quaternary age activity are associated with this zone. Based on offshore data, it has been inferred that two to five moderate earthquakes during late Holocene time have resulted in surface displacement (Fischer et al., 1987).
San Andreas Fault Zone	This right-lateral strike-slip fault zone is comprised of numerous subparallel faults in a zone as much as 2.5 miles wide. This zone extends as a continuous surface feature for about 620 miles, from Cape Mendocino to Banning. Beyond Banning, the fault extends through the Salton Trough, into Mexico and the Gulf of California. The southern extensions of the fault disappear under the alluvial deposits of sand and gravel that cover the lower part of California. The latest activity ranges from late Quaternary to historic time.
San Fernando-Sierra Madre Fault System	This fault system is comprised of a series of independent, arcuate fault segments in a zone as much as 3,200 feet wide. These north-dipping reverse or reverse left-oblique faults extend across approximately 65 miles of the Transverse Ranges north of Los Angeles. Late Quaternary to historic surface rupture has been noted on this system. Small to moderate earthquakes, including the M 6.4 1971 San Fernando earthquake, have been attributed to this fault system.
Santa Monica Mountains Fault System	This fault system, which extends for more than 55 miles from near downtown Los Angeles westward along the Malibu Coast, consists of a large blind thrust ramp and the surficial Hollywood-Santa Monica-Malibu Coast Fault Subsystem (Dolan et al., 1995). The blind thrust ramp is believed to be mechanically linked at depth to the Hollywood-Santa Monica-Malibu Coast Faults which are exposed at the surface. The surficial faults exhibit reverse or reverse left-oblique, and possibly left-lateral strike-slip movement. The Malibu Fault consists of several subparallel strands in a zone up to 1,600 feet wide. The Santa Monica Fault consists of one or more strands in a zone locally up to 1,300 feet wide. The Hollywood Fault is a presumed single fault strand. These faults have produced Late Quaternary and Holocene surface rupture. Numerous small and several moderate earthquakes have been attributed to this zone.
San Jacinto Fault Zone	This fault zone is a northwest trending series of right-lateral faults. From the eastern San Gabriel Mountains where it appears to merge with the San Andreas Fault Zone, the fault zone extends south for more than 190 miles through the Imperial Valley and into northern Baja, California. Individual fault segments range from 5 to over 50 miles in length, and form a zone as much as 1,000 feet wide. There have been numerous small to moderate earthquakes along this zone in historic time. It is currently considered the primary active branch of the San Andreas Fault System.

Table 3.6-3 (Cont'd)

Seismic Structure	Description
Whittier-Elsinore Fault Zone	The Whittier Fault is a steeply-dipping, northwest-trending fault. It is generally considered the northwest extension of the Elsinore Fault Zone, which has a total extent of more than 120 miles. At depth, the Whittier Fault probably interacts with the Compton Blind Thrust Ramp, and accommodates the strike-slip component along the ramp system. Fault motion along Whittier-Elsinore Fault Zone is complex, and includes strike-slip, normal, and reverse faulting along different faults within the zone. Holocene and Quaternary surface rupture has been attributed to this zone. The largest historic earthquake attributed to the Whittier Fault is a M 3.2 event in 1971. However, several M 6 events have been attributed to the Elsinore Fault. Numerous small earthquakes have also been attributed to various fault strands in this system.
M magnitude	

ground accelerations for both maximum probable and maximum credible earthquakes associated with the major faults described in Table 3.6-3. Computer modeling of these faults indicates that the White Point housing area could be subjected to ground motion intensities ranging in Modified Mercalli values from VII to VIII (Evernden and Thomson, 1985; Toppozada, et al., 1988, 1989).

The White Point Navy housing area and adjacent 8-acre site are also located approximately 5 miles south of the inferred surface expression of the Compton Blind Thrust Ramp (Dolan et al., 1995). There is insufficient data currently available regarding this blind thrust ramp to calculate the maximum probable, credible, and estimated peak ground acceleration parameters in Table 3.6-6, but local peak horizontal and vertical ground accelerations experienced during a major or moderate earthquake could exceed 1.0 g. A major earthquake along the Compton Blind Thrust Ramp could produce damage equivalent to, or greater than, damage projected for the maximum credible earthquakes generated by the Cabrillo, Palos Verdes, or Newport-Inglewood Fault Zones.

3.6.4.2 Montgomery Navy Housing

The Cabrillo, Palos Verdes, and Newport-Inglewood Fault Zones are located within 10 miles of the Montgomery housing site (Table 3.6-5). Because the onshore expression of the Palos Verdes Fault Zone has not been precisely located, the Montgomery housing site may be located between 0.25 to 1 mile southwest of the Palos Verdes Fault Zone (Fischer et al., 1987). Woodring and others (1946) and have mapped the Cabrillo Fault from the central Palos Verdes uplift to a point 7 miles southeast of Point Fermin. Based on these interpretations, the Montgomery housing site is located approximately 2 miles northeast of the Cabrillo Fault. Due to their proximity, even a moderate earthquake along one of these faults could result in strong to intense ground motion at the site. Table 3.6-5 presents estimated peak ground accelerations for both maximum probable and maximum credible earthquakes associated with the major faults described in Table 3.6-3. Computer modeling of these faults indicates that the Montgomery housing site could be subjected to ground motion intensities ranging in

Table 3.6-4

Maximum Probable and Credible Earthquakes
White Point Navy Housing

Fault Zone	Approximate Distance from Site (miles)	Estimated Total Fault Length (miles)	Maximum Magnitude of Historical Earthquakes (Richter)	Maximum Probable Earthquake Magnitude (Richter)	Maximum Credible Earthquake Magnitude (Richter)	Estimated Peak Ground Accelerations[a] (g)
Cabrillo	<1	12	--	5.0	6.5	0.34+ / 0.56+
Palos Verdes	2	50	5.0	5.0	6.7	0.30 / 0.55
Newport- Inglewood	10	55	6.3 (1933)	6.6	7.6	0.32 / 0.46
Whittier-Elsinore	25	120	6.7 (est.) (1892)	6.4	7.5	0.14 / 0.25
Santa Monica Mountains	25	65	6.0 (est.) (1855)	6.0	7.5	0.11 / 0.25
San Fernando- Sierra Madre	35	49	6.4 (1971)	6.6	7.5	0.11 / 0.19
San Jacinto	54	190	7.1 (1940)	7.0	7.7	0.09 / 0.15
San Andreas	57	700+	8.3+(est.) 1857)	7.7	8.4	0.13 / 0.23

[a] Estimated peak ground accelerations based upon maximum probable / credible earthquakes
g fraction of the acceleration of gravity

Modified Mercalli values from VII to VIII (Evernden and Thomson, 1985; Toppozada, et al., 1988, 1989).

The Montgomery housing site is located approximately 2.5 miles south of the inferred surface expression of the Compton Blind Thrust Ramp. There is insufficient data currently available regarding this blind thrust ramp to calculate the maximum probable, credible, and estimated peak ground acceleration parameters in Table 3.6-5, but local peak horizontal and vertical ground accelerations experienced during a major or moderate earthquake could exceed 1.0 g. A major earthquake along the Compton Blind Thrust Ramp could produce damage equivalent to, or greater than, damage projected for the maximum credible earthquakes generated by the nearby Palos Verdes, Cabrillo, and Newport-Inglewood Fault Zones.

The Montgomery housing site is located on the southern border of a Fault Rupture Study Area, as defined in the Seismic Safety Plan for the City of Los Angeles (City of Los Angeles, 1975b). According to the Seismic Safety Plan, levels of acceptable risk within a Fault Rupture Study Area apply mainly to structures such as power plants, hospitals, emergency rescue services, and high-occupancy buildings. Single-family residences within a Fault Rupture Study Area, such as those at the Montgomery housing site, are considered to have an “ordinary” level of acceptable risk to building occupants.

3.6.4.3 Fort MacArthur Upper Reservation

The Cabrillo, Palos Verdes, and Newport-Inglewood Fault Zones are located within 10 miles of the Fort MacArthur Upper Reservation housing site (Table 3.6-6). Although much of the onshore extent of the Cabrillo Fault is obscured by development, geomorphic evidence and published geologic maps (Woodring et al., 1946) indicate that it is located off-site, approximately 200 to 300 feet to the north along 30th Street. The precise location of the fault is not known. Two subsurface trenches were excavated on the housing site, but no evidence of offset or faulting from the Cabrillo Fault were noted (Converse Consultants, 1995). Active segments of the Palos Verdes Fault are located approximately two miles east of the housing site, and the Newport-Inglewood Fault Zone is located approximately 10 miles to the northeast. Due to their proximity, even a moderate earthquake along one of these faults could result in strong to intense ground motion at the housing site. Table 3.6-6 presents estimated peak ground accelerations for both maximum probable and maximum credible earthquakes associated with the major faults described in Table 3.6-3. Computer modeling of these faults indicates that the Fort MacArthur Upper Reservation housing site could be subjected to ground motion intensities ranging in Modified Mercalli values from VII to VIII (Evernden and Thomson, 1985; Toppozada, et al., 1988, 1989).

Due to its proximity, the Compton Blind Thrust Ramp could also generate intense ground motions at the Fort MacArthur Upper Reservation housing site. The inferred surface expression of this blind thrust is located between three to five miles north of the housing site. There is insufficient data currently available regarding this blind thrust

Table 3.6-5

Maximum Probable and Credible Earthquakes, Montgomery Navy Housing Areas

Fault Zone	Approximate Distance from Site (miles)	Estimated Total Fault Length (miles)	Maximum Magnitude of Historical Earthquakes (Richter)	Maximum Probable Earthquake Magnitude (Richter)	Maximum Credible Earthquake Magnitude (Richter)	Estimated Peak Ground Accelerations[a] (g)
Palos Verdes	<1	50	5.0	5.0	6.7	0.34+ / 0.59+
Cabrillo	2	12	--	5.0	6.5	0.30 / 0.53
Newport- Inglewood	7	55	6.3 (1933)	6.6	7.6	0.38 / 0.53
Whittier-Elsinore	22	120	6.7 (est.) (1892)	6.4	7.5	0.16 / 0.27
Santa Monica Mountains	22	65	6.0 (est.) (1855)	6.0	7.5	0.12 / 0.27
San Fernando- Sierra Madre	32	49	6.4 1971)	6.6	7.5	0.12 / 0.20
San Jacinto	52	190	7.1 (1940)	7.0	7.7	0.09 / 0.16
San Andreas	55	700+	8.3+ (est.) (1857)	7.7	8.4	0.15 / 0.24

[a] Estimated peak ground accelerations based upon maximum probable / credible earthquakes
g fraction of the acceleration of gravity

Table 3.6-6

Maximum Probable and Credible Earthquakes
Fort MacArthur Upper Reservation

Fault Zone	Approximate Distance from Site (miles)	Estimated Total Fault Length (miles)	Maximum Magnitude of Historical Earthquakes (Richter)	Maximum Probable Earthquake Magnitude (Richter)	Maximum Credible Earthquake Magnitude (Richter)	Estimated Peak Ground Accelerations[a] (g)
Cabrillo	1	12	--	5.0	6.5	0.34+ / 0.56+
Palos Verdes	2.5	50	5.0	5.0	6.7	0.28 / 0.53
Newport- Inglewood	10	55	6.3 (1933)	6.6	7.6	0.32 / 0.46
Whittier-Elsinore	25	120	6.7 (est.) (1892)	6.4	7.5	0.14 / 0.25
Santa Monica Mountains	24	65	6.0 (est.) (1855)	6.0	7.5	0.11 / 0.26
San Fernando- Sierra Madre	35	49	6.4 (1971)	6.6	7.5	0.11 / 0.19
San Jacinto	54	190	7.1 (1940)	7.0	7.7	0.09 / 0.15
San Andreas	56	700+	8.3+ (est.) (1857)	7.7	8.4	0.14 / 0.24

[a] Estimated peak ground accelerations based upon maximum probable / credible earthquakes
g fraction of the acceleration of gravity

ramp to calculate the maximum probable, credible, and estimated peak ground acceleration parameters in Table 3.6-6, but local peak horizontal and vertical ground accelerations experienced during a major or moderate earthquake could exceed 1.0 g. A major earthquake along the Compton Blind Thrust Ramp could produce damage equivalent to, or greater than, damage projected for the maximum credible earthquakes generated by the nearby Cabrillo, Palos Verdes, or Newport-Inglewood Fault Zones.

3.6.5 Landslides

Landslides are mass movements of material downslope under the influence of gravity. Landslides often occur along a well defined surface, such as fractures, faults, or bedding planes. They occur in a variety of forms, including: rockfalls, debris slides, mudflows, block slides, soil slides, slumps, and creeps. These mass movements can be triggered or accelerated by earthquake-induced ground motion, increased water content, excessive surface loading, or alteration of existing slopes by man (improper grading) or nature (stream or wave undercutting). Adverse geologic conditions, such as exposed bedding planes, low-strength soil or bedrock materials, and high groundwater content can also contribute to landsliding.

Landslides are extremely prevalent in the Palos Verdes Hills, and records of historic movement in the area are well documented. The most notable is the Portuguese Bend Landslide, which is located approximately 4 miles west of San Pedro. Although the initial movement at Portuguese Bend occurred in August 1956, motion along the scarp has continued for over 30 years (Ehlig and Bryant, 1986).

3.6.5.1 White Point Navy Housing

The White Point housing area and adjacent 8-acre site are located near the coast, approximately 0.75 miles from the South Shores Landslide. No landslides at the White Point housing area were identified during a geotechnical evaluation performed prior to construction of the Navy housing (Converse Consultants, 1984a). Landslides were not identified on the adjacent 8-acre area during a recent geotechnical investigation (Coleman Geotechnical, 1996). Surficial landslides (slumps) were observed on natural slopes adjacent to the eastern boundary of the property, but they do not affect ground stability at the housing area or adjacent 8-acre site. The study concluded that no potential landslide problems were associated with the White Point housing area, and that no special mitigation measures were necessary.

The White Point housing and adjacent 8-acre site are located within a Slope Stability Study Area, as defined in the Seismic Safety Plan for the City of Los Angeles (City of Los Angeles, 1975b). The White Point housing area and adjacent 8-acre site are also adjacent to the northern boundary of the coastal strip designated as a Geologically Hazardous Area, under the San Pedro Coastal Land Use Plan (City of Los Angeles, 1991).

A slope stability analysis was completed as part of a recent geotechnical study of the adjacent 8-acre site (Coleman Geotechnical, 1996). Based on calculations and the lack of any past slope instability, the existing slopes were found to be stable and would support the housing project (Coleman Geotechnical, 1996).

3.6.5.2 Montgomery Navy Housing

Although landslides are extremely prevalent in the Palos Verdes area, the majority of them have occurred along the coast. The Montgomery housing site is located at least 3 miles north (inland) of several historic landslides: the Point Fermin, South Shores, and Portuguese Bend Landslides.

The Montgomery housing site is located within a Slope Stability Study Area, as defined in the Seismic Safety Plan for the City of Los Angeles (City of Los Angeles, 1975b). According to the Seismic Safety Plan, any proposed "critically important" structures (e.g., power plants, hospitals, and high-occupancy buildings) within a Slope Stability Study Area shall require "comprehensive geologic-seismic design-foundation engineering investigations" prior to construction.

A preliminary evaluation of the slope along the northern boundary of the Montgomery housing site was performed as part of a geotechnical investigation at the DLA tank farm (Converse Consultants, 1984b). This investigation concluded that the slope had an average height of 50 feet, and a 1.5 horizontal to 1.0 vertical ratio. The slope was apparently engineered and provided with drainage control at the time of construction. Debris basins appeared to have been constructed in all of the important drainage canyons that cut the slope. Paved terrace drains, cracked and/or blocked with ice plant or sediment, were also noted. Observed erosion damage at that time was generally minor to minimal. The evaluation report recommended repairing and/or maintaining all drains on the slope, repairing minor erosion damage with compacted fill and vegetation, and correcting any drainage conditions causing erosion.

The stability of the slope along the northern site boundary appears to have further deteriorated since the original geotechnical investigation. During a site reconnaissance in February 1995, gullying and erosion of this slope was noted. Several wide (approximately 5 to 10 feet) erosion channels have deposited large amounts of slope sediments in the back yards of the housing in the northern portion of the site. Much of this erosion appears to be the result of recent heavy rains, and additional erosion is probable during future storm events. While it is not known if the terrace drains were cleaned following the 1984 investigation, they are currently partially filled with vegetation and debris.

3.6.5.3 Fort MacArthur Upper Reservation

The Fort MacArthur Upper Reservation housing site is situated between two historic landslides, the South Shores and Point Fermin Landslides. The South Shores Landslide is approximately 1.5 miles northwest of the housing site, whereas the Point Fermin Landslide is 0.75 miles southeast of the site. The housing site is located within a

Slope Stability Study Area, as identified by the Seismic Safety Plan portion of the General Plan of the City of Los Angeles. South of the housing site, the coastal strip is designated a geological hazard area in the San Pedro Local Coastal Program Specific Plan.

Landsliding hazards at the housing site were previously evaluated (EP, 1989), and no landsliding problems were anticipated at that time. However, at least one small landslide has occurred recently within the boundaries of the proposed housing site, on the slope above Alma Street (see Figure 3.6-5). The landslide is a soil slide which occurred during the winter of 1993. According to Fugro West (1995), it appeared that the landslide was confined to residual soils, colluvium, and possibly artificial fill on the slope face. Hummocky topography, indicating slumping of the soils, can also be noted in other areas along this steep slope. Slopes along Alma Street, behind the Battery Barlow-Saxton, and in the vicinity of Gaffey Street access are very steep, up to 45 degrees in some areas. These very steep slopes are potentially unstable (Fugro West, 1995). Slopes in the interior of the proposed housing site are relatively stable. The stable areas, which comprise the buildable portion of the site, are nearly level or moderately sloping, and have been previously graded during military occupation.

A review of historical topographic maps of the project vicinity was performed during a recent geotechnical study (Fugro West, 1995). An arcuate, bell-shaped topographic feature was noted, which could be interpreted as the result of regional landslide movement. That feature covered 80 to 100 acres, a portion of which underlies the housing site. The western half of the site would be underlain by this feature. The topographic feature has been hidden by earthmoving at the site and extensive development in the surrounding area. No direct evidence to support the inferred landslide origin for this feature was found during the literature review or previous subsurface investigations (Fugro West, 1995). This feature was previously interpreted to be a wave-cut platform created during emergence of the peninsula (Woodring et al., 1946).

A slope stability analysis was completed as part of the recent geotechnical study of the housing site (Fugro West, 1995). Slope stability analyses were performed for the areas of the Alma Street slope, the Barlow-Saxton Road access, and miscellaneous cut and fill slopes in the buildable interior portion of the site. Regraded conditions which are proposed for the Alma Street slope and interior of the housing site (where the proposed housing would be built) were also evaluated. While no evidence of past slope instability was observed other than the small landslide along Alma Street, it appears that slopes in the area above and below the proposed Barlow-Saxton Road access are potentially unstable (Fugro West, 1995). The potential instability in this area is associated with the unfavorable orientation of bedding planes and the strength of the rocks within the Monterey Formation. Bedding planes are dipping downhill, following the slope. Based on the observations of clay within this formation on the site, it was also assumed that the strength between bedding planes is relatively low (Fugro West, 1995).

Figure 3.6-5

**Lateral Extent of Recent Landslide at Fort MacArthur
Upper Reservation Housing Site**

3.6.6 Liquefaction

Liquefaction, a process by which water-saturated sediment suddenly loses strength, commonly accompanies strong ground motions generated by earthquakes. During an extended period of ground shaking or dynamic loading, porewater pressures increase and the ground is temporarily altered from a solid to a liquid state. Liquefaction is most likely to occur in unconsolidated, granular sediments that are water saturated within 30 feet or less of the ground surface (Tinsley et al., 1985). As described above, earthquake-induced ground motion is dependent upon the type of fault movement, earthquake magnitude, distance from the epicenter, depth of the earthquake, and the nature of the earth materials underlying the site. The severity of ground shaking at a particular location is also affected by the depth to groundwater. Shaking intensity decreases approximately one intensity unit with an increase in depth to groundwater from 0 to 30 feet (Evernden and Thomson, 1985).

3.6.6.1 White Point Navy Housing

During a geotechnical study performed prior to construction of the White Point Navy housing, it was determined that the liquefaction potential in the housing area was low (Converse Consultants, 1984a). During a recent geotechnical study performed at the adjacent 8-acre site, it was determined that the liquefaction potential was negligible (Coleman Geotechnical, 1996). These evaluations were based on the types of soils or strata, and the lack of groundwater.

3.6.6.2 Montgomery Navy Housing

Boring logs and monitoring well construction records from a groundwater sampling project at the former Taper Avenue Navy housing site indicate that groundwater occurs between 70 and 75 feet bgs in this area (Navy, 1994d). Sediments at the site are clayey and consolidated. Therefore, the potential for liquefaction at the Montgomery housing site is considered low.

3.6.6.3 Fort MacArthur Upper Reservation

Groundwater at the Fort MacArthur Upper Reservation housing site was not encountered up to depths of 45 feet bgs (ESE, 1988). Except for shallow surface soils, sediments at the housing site are consolidated, and are comprised of generally non-liquefiable clayey soils and fill material overlying rocks. Therefore, the potential for liquefaction at the housing site is low (Tinsley et al., 1985; Fugro West, 1995).

3.6.7 Subsidence

The ground surface can settle from the compaction of underlying unconsolidated sediments. Differential settlement, the uneven and localized settling of structures or the ground surface, is most common in uncompacted soils, unconsolidated alluvial material, and improperly constructed artificial fill. Earthquake-induced ground motion may trigger or accelerate the settlement of loose, cohesionless soils, such as well-sorted sands and silts, depending upon the depth and lateral continuity of the soils.

Regional ground subsidence is caused by decreasing subsurface pressure, and is typically associated with the rapid removal of large volumes of groundwater, natural gas or oil. Regional subsidence in the Los Angeles-Long Beach Harbor area was first observed in 1928. It is believed that this early regional subsidence was related to groundwater withdrawal, and possibly natural basin sediment compaction. Subsidence accelerated during the 1938-1939 period, coincident with early development of the "Giant" Wilmington Oil Field (Allen, 1973). It has affected the majority of the Los Angeles-Long Beach harbor area.

3.6.7.1 White Point Navy Housing

Soils at the White Point Navy housing area were compacted during construction of the housing, thereby reducing the potential for subsidence (Moses, 1995). The old dump fill or uncompacted fill area observed during the original geotechnical studies performed prior to construction (Engineering Geology Consultants, 1974) is presumed to have been excavated and disposed. The potential for subsidence at the adjacent 8 acres site is considered very low (Coleman Geotechnical, 1996). The White Point housing area and adjacent 8-acre site are outside of the area affected by the regional subsidence in the Los Angeles-Long Beach Harbor area, and regional subsidence is unlikely to affect the site.

3.6.7.2 Montgomery Navy Housing

Soils at the Montgomery Navy housing area were compacted during construction of the housing, thereby reducing the potential for subsidence (Moses, 1995). The Montgomery housing area is outside of the area affected by the regional subsidence in the Los Angeles-Long Beach Harbor area, and regional subsidence is unlikely to affect the site.

3.6.7.3 Fort MacArthur Upper Reservation

The potential for subsidence at the Fort MacArthur Upper Reservation housing site is considered low, due to the generally consolidated sediments at the housing site, with the exception of areas of historic landfills (see Subchapter 3.5.2). The fill and debris buried in these small landfill areas have not been evenly compacted, and would be excavated and disposed prior to any construction above them. The housing site is located outside of the area affected by the regional subsidence in the Los Angeles-Long Beach Harbor area, and regional subsidence is unlikely to affect the site.

3.6.8 Non-renewable Mineral Resources

The State of California classifies areas of mineral resources into mineral resource zones (MRZ). These zones indicate the deposits that meet State criteria for value and marketability. There are only two non-renewable mineral resources documented in the Palos Verdes area: diatomite and petroleum resources. Diatomite is a porous, soft, friable, siliceous deposit comprised of one-celled organisms called diatoms. It is being commercially extracted in localized areas in the Palos Verdes Hills. Diatomite is used in several industrial applications, including filter materials, thickeners, and abrasives.

Petroleum resources, which include oil and natural gas, underlie much of coastal California. Oil fields in the area include, but are not limited to, the Wilmington and Los Angeles oil fields. The Wilmington oil field has been a prolific producer of both oil and natural gas since its discovery in 1936.

3.6.8.1 White Point Navy Housing

The White Point housing area and the adjacent 8-acre site have been designated as a MRZ-1, which means that there are no commercially extractable resources at the site (Miller, 1995). The site is not located within an oil field area, nor has there been any mining or oil extraction at the site in the past. Several exploration wells have been drilled within one mile of the housing area; these wells were dry and have been plugged (CDOG, 1994). The Wilmington Oil Field is located approximately four miles northeast of the housing area.

3.6.8.2 Montgomery Navy Housing

The Montgomery Navy housing area is located in an area designated as a MRZ-3, which means that it is not certain whether this area has commercially extractable resources. The state does not plan any further study of the area (Miller, 1995). There are no commercially extractable quantities of diatomite at the site. The site is not, located within an oil field area, nor has there been any mining or oil extraction at the site in the past. Several exploration wells have been drilled within one mile of the site; these wells were dry and have been plugged (CDOG, 1994). The Wilmington Oil Field is located approximately two miles northeast of the site.

3.6.8.3 Fort MacArthur Upper Reservation

The State has designated the area encompassing the Fort MacArthur Upper Reservation housing site as a MRZ-1, which means that there are no commercially extractable resources at the site (Miller, 1994). The housing site is not located within an oil field area, and there has been no mining or oil pumping at the housing site in the past. Several exploration wells have been drilled within one mile of the housing site; these wells were dry and have been plugged (CDOG, 1994). The Wilmington Oil Field is located approximately four miles northeast of the housing site.

3.6.9 Paleontologic Resources

Paleontologic resources are more commonly known as fossils. They are the remains of organisms, both plant and animal, or evidences of animal activity that have been preserved in rocks of the geologic past. Fossils are a nonrenewable, scientifically and educationally sensitive resource that are protected under state and federal laws and regulations.

Rock units that have previously produced fossils are generally considered to have a potential to produce additional fossil material. A review of previous research is used to assign a qualitative level of a rock unit's potential to contain fossil material. In general, rocks can have a high, low, or undetermined potential. Rocks with a high potential are regularly known to produce fossils that are scientifically important for phylogenetic, stratigraphic, or geochronologic studies. Rocks with a low potential have only isolated fossil finds, and/or contain only non-scientifically important or fragmentary fossil remains. An undetermined potential is assigned to those rocks where not enough is currently known to determine its fossil-bearing potential.

3.6.9.1 White Point Navy Housing

The White Point Navy housing area and adjacent 8-acre site are underlain by the Altamira Shale of the Monterey Formation and Pleistocene age marine terrace deposits, with a veneer of recent soils and artificial fill.

The Altamira Shale is highly fossiliferous (Petra Resources, 1994a and 1996a). Sixteen vertebrate fossil localities have been recorded in this formation in the area. The major fossil groups recovered from this unit include whales, dolphins, walrus and sea lion type creatures, fishes, and birds. The paleontological field survey found fossil fish bone and a well preserved fish scale at the housing area (Petra Resources, 1995e). No fossil material was observed at the 8-acre site (Petra Resources, 1996a). The shale has a high paleontological sensitivity (Petra Resources, 1994a and 1996a).

The marine terrace deposits in the Palos Verdes and San Pedro area also contain a varied and abundant fossil fauna, including mollusks, echinoids, bryozoa, and marine and terrestrial vertebrates. The marine terrace deposits have a high paleontological sensitivity (Petra Resources, 1994a and 1996a).

Slopewash deposits in this area have a low potential for significant paleontological resources (Petra Resources, 1994a and 1996a). Fill material at the housing area and the adjacent 8-acre site also have a low paleontologic sensitivity (Petra Resources, 1994a and 1996a).

3.6.9.2 Montgomery Navy Housing

The Montgomery Navy housing area is underlain by Pleistocene age marine terrace deposits, with a veneer of recent soils and artificial fill (see Subchapter 3.6.1.2). In addition, large concentrations of shell material occur throughout the site. The shell material appears to have been brought in as fill, during the original construction of the housing (Petra Resources, 1995a).

The terrace deposits are the remains of ancient wave-cut terraces uplifted by tectonic processes. Nonmarine materials often overlie marine terrace deposits. The marine terrace deposits in the vicinity of the Montgomery housing site are known to contain varied and abundant vertebrate and invertebrate fossils. The major vertebrate fossil groups found in these beds in the vicinity are bison, sloth, bat ray, fish, whales, seals, voles, gophers, mammoths, extinct horse, and birds. Invertebrate fossils include mollusks, echinoids, and bryozoa (Petra Resources, 1995c). A vertebrate and an invertebrate fossil locality are located within a one mile radius of the site. The terrace deposits, marine and nonmarine, have a high paleontological sensitivity.

Scattered remains of fossil shells were noted on the housing area site, which are believed to have been brought in with the fill material (Petra Resources, 1995e). The fill material at the site is known to contain invertebrate and shell material. However, since this shell material is mostly crushed and no longer in its original deposit, it does not have scientific paleontological value. The fill material at the site is of low paleontological sensitivity.

3.6.9.3 Fort MacArthur Upper Reservation

As described in Subchapter 3.6.1.3, the Fort MacArthur Upper Reservation housing site is underlain primarily by the Altamira Shale of the Monterey Formation, with a thin veneer of recent soils and artificial fill. Although not observed at the housing site, there is also a possibility that small areas of nonmarine terrace deposits may be present (Petra Resources, 1994a). These deposits have been mapped near the Fort MacArthur Upper Reservation boundaries.

The Altamira Shale at the housing site is highly fossiliferous (Petra Resources, 1994a). Sixteen vertebrate fossil localities have been recorded in this formation in the area. The major fossil groups recovered from this unit include whales, dolphins, walrus and sea lion type creatures, fishes, and birds. Fossil fish material, including bone and scales, indeterminate possible marine mammal bone, plant fragments, and foraminifera (single cell marine plankton) have been recovered from the Altamira Shale on the housing site (Petra Resources, 1995c). It has a high paleontological sensitivity (Petra Resources, 1994a).

The marine terrace deposits in the Palos Verdes and San Pedro area also contain a varied and abundant fossil fauna, including mollusks, echinoids, bryozoa, and marine and terrestrial vertebrates. Fragments of unclassifiable echinoid spines and invertebrate shell fragments have been recovered from the terrace material on the housing site (Petra Resources, 1995c). The marine terrace deposits have a high paleontological sensitivity (Petra Resources, 1994a).

Slopewash deposits in this area have a low potential for significant paleontological resources (Petra Resources, 1994a). Fill material at the housing site also has a low paleontologic sensitivity (Petra Resources, 1994a).

3.7 WATER RESOURCES

3.7.1 Surface Water

Surface waters include above-ground water systems such as streams, rivers, lakes and oceans.

3.7.1.1 White Point Navy Housing

The White Point site is located approximately one-quarter mile from the Pacific Ocean. The areas surrounding the White Point housing area are primarily residential and open space. There are no rivers, lakes or streams located in the vicinity of the White Point housing area or the adjacent 8 acres.

The California Regional Water Quality Control Board (CRWQCB), Los Angeles Region has designated beneficial uses for coastal waters (CRWQCB, 1994). The CRWQCB has also specified numerical and narrative water quality objectives to maintain these beneficial uses. The designated beneficial uses for the coastal area offshore of the housing site are navigation, water contact and non-contact recreation, commercial and sport fishing, marine habitat, and wildlife habitat (CRWQCB, 1994).

3.7.1.2 Montgomery Navy Housing

Areas surrounding the Montgomery housing site are primarily residential and industrial. Surface waters in the site vicinity include: Harbor Lake, located approximately 1.25 miles to the northeast; the West Basin of Los Angeles Harbor, located 1.5 miles to the southeast; and the Pacific Ocean, located approximately four miles south. A covered reservoir, known as the Palos Verdes Reservoir, is used for drinking water storage and is located approximately one mile west of the Montgomery housing site. The reservoir is owned and operated by the MWD (Barr, 1995). No streams or rivers are located in the immediate site area.

The CRWQCB designates beneficial uses and water quality objectives to maintain these beneficial uses for both inland surface and coastal waters. Designated beneficial uses for the inner areas of the Los Angeles Harbor include navigation, non-contact water recreation, commercial and sport fishing, marine habitat, and rare or endangered species habitat. Beneficial uses designated for Harbor Lake include potential use as municipal supply, contact and non-contact water recreation, warm-water habitat, wildlife habitat, rare, threatened, or endangered species habitat, and wetland. Designated beneficial uses for the Pacific Ocean are discussed in Subchapter 3.7.1.1.

3.7.1.3 Fort MacArthur Upper Reservation

Areas surrounding the Fort MacArthur Upper Reservation housing site are primarily residential and open space. There are no streams, rivers, or lakes in this portion of Los Angeles County. However, the housing site is located approximately one quarter mile north-northeast of the Pacific Ocean. Beneficial uses and water quality objectives designated by the CRWQCB for inland surface and coastal waters are discussed in Subchapter 3.7.1.1.

3.7.2 Surface Drainage

3.7.2.1 White Point Navy Housing

Stormwater and urban runoff at the White Point housing area is collected by existing on-site storm drain systems. Runoff control structures have been installed at the housing area and consist mainly of gutters, catch basins and accompanying runoff conveyance piping. A drainage channel is located at the south (downslope) end of the White Point housing area. Surface drainage on the White Point housing area is primarily to the south and southwest (Figure 3.7-1). A total of four stormwater catch basins are located within the housing area: Seafarer Circle; Voyager Circle; Mariner Drive; and the east side of Whites Point Drive near Seafarer Circle (Figure 3.7-1). The catch basins located on Mariner Drive and Voyager Circle drain through a series of storm sewers ranging in size from 12-inches to 24-inches, which drains to a drainage channel that ultimately drains to the ocean (Hall, S., 1995). Eight of the 24.4 acres on the White Point site are undeveloped. The undeveloped portion of the site is south of the existing White Point housing. Stormwater and urban runoff from the undeveloped portion of the site drains southeast down a steep slope to a storm drain located on Weymouth Avenue just north of Paseo Del Mar. A 24-inch drain located just outside the southernmost boundary of the site is assumed to discharge runoff from above the undeveloped 8 acres. The drainage continues downhill to the storm drain located on Weymouth Avenue.

3.7.2.2 Montgomery Navy Housing

Stormwater and urban runoff at the Montgomery housing area is collected by existing on-site storm drain systems. Surface drainage on the west side of the Montgomery housing area is primarily southwest, while drainage on the east side of the site is primarily to the southeast (Figure 3.7-2). A total of 15 stormwater catch basins are located within the housing area. Ten of the catch basins are located along the southern end of John Montgomery Drive. The remaining five are located on the southern portion of Samuel Dupont Avenue (Figure 3.7-2). The catch basins located near the intersection of John Montgomery Drive and Taper Avenue drain to a 54-inch storm sewer located along Taper Avenue, which ultimately drains into the Los Angeles Harbor (Navy, 1994e).

3.7.2.3 Fort MacArthur Upper Reservation

Stormwater runoff in the area is presently collected by the existing storm drainage system that drains into the Pacific Ocean. Stormwater over the majority of the housing site drains approximately to the west (Figure 3.7-3). Drainage is primarily south-southwest along Alma Street, and the majority of the stormwater runoff is collected in catch basins. There are nine catch basins along the section of Alma Street between 30th and 36th Streets, six on the east side and three on the west side of the street. Runoff from the housing site drains into the six catch basins located on the east side of Alma Street. These catch basins are connected to a 42-inch storm sewer, which drains to a 66-inch

Figure 3.7-1

White Point Housing Site Storm Drainage System

Figure 3.7-2

Montgomery Housing Site Storm Drainage System

Figure 3.7-3

Storm Drainage System at Fort MacArthur Upper Reservation

storm sewer and subsequently into the Pacific Ocean (Anderson, 1994). In the vicinity of the Battery Barlow-Saxton, site drainage is to the northeast. Runoff is collected by a 36-inch storm sewer, which connects with a 45-inch storm sewer, and subsequently drains into Los Angeles Harbor (Figure 3.7-4).

3.7.3 Groundwater

3.7.3.1 White Point Navy Housing

Groundwater depth at the White Point site is estimated to be approximately 50 to 100 feet bgs (USAF, 1984). Groundwater (non-potable source of water) beneath the site is not well defined, it occurs in localized sand units found within highly impervious Monterey Shale. Silty clay units may hold small, localized perched water tables (ESE, 1988).

3.7.3.2 Montgomery Navy Housing

The Montgomery housing site is located along the southern boundary of the West Coast groundwater basin. The basin is bounded on the north by the Ballona Escarpment, to the south and west by the Pacific Ocean, and to the east by the Newport-Inglewood Fault. Regional groundwater flow is generally to the northeast (Navy, 1994e). The basin is recharged by surface and subsurface inflow from streams in surrounding hills and mountains, and groundwater spreading operations. Groundwater in the basin is a source of drinking water and is monitored by the California Department of Water Resources to maintain quality and integrity (Navy, 1994e).

In 1994, the Navy conducted a soil and groundwater sampling project at the former Taper Avenue Navy housing site to determine whether activities on the adjacent DLA tank farm have affected the soil and groundwater conditions under the Taper Avenue site. Nine soil borings were drilled, three of which were converted to groundwater monitoring wells (MW-1, MW-2, MW-3) (Figure 3.7-5). Groundwater under the site was detected at approximately 68 to 76 feet bgs, approximately 41 to 43 feet above MSL (Navy, 1994e). The direction of groundwater flow under the site is to the southeast (Figure 3.7-5). The different direction of groundwater flow under the site, compared to regional groundwater flow, may be attributed to the ongoing groundwater extraction and treatment taking place in the southeast portion of the DLA property.

Groundwater under the site was analyzed for various chemicals of concern including semivolatile organic compounds (SVOCs) and metals. Constituent concentrations were compared with the California Primary and Secondary MCLs. Primary MCLs are for constituents that, if exceeded, would present a risk to human health. Secondary MCLs, considered goals, are for constituents which may adversely affect the aesthetic quality of drinking water, such as taste, odor, and appearance.

All metal concentrations were found to be below their respective MCLs with the exception of manganese (169 μg/L), which was detected above its secondary MCL (50 μg/L) in monitoring well MW-3 (Figure 3.7-5). Selenium (estimated concentration of 24.5 μg/L detected in all three monitoring wells) exceeded its primary MCL (10 mg/L)

Figure 3.7-4

Drainage Basins and Locations of Outfall Pipes Draining For MacArthur Upper Reservation

Figure 3.7-5

Groundwater Elevation and Flow Direction Near the Montgomery Housing Site

(Navy, 1994e). All SVOC concentrations were below the contract required quantitation limits (Navy, 1994e).

3.7.3.3 Fort MacArthur Upper Reservation

The aquifer system beneath the housing site is not well developed due to the nature of the underlying geologic units (see Chapter 3.6). Groundwater in the area occurs in localized sand units found within the highly impervious Monterey Shale. These pockets of groundwater (non-potable water source) are highly saline and are without hydraulic connection to freshwater recharge. Silty clay units may hold small, localized perched water tables. Drilling conducted at the housing site as part of the IRP investigation (see Chapter 3.5) did not encounter any water at depths to 45 feet below ground surface (ESE, 1988).

3.8 AIR QUALITY

3.8.1 Climate and Meteorology

The White Point, Montgomery and Fort MacArthur Upper Reservation housing sites are located in the South Coast Air Basin (Basin). Atmospheric conditions in the Basin are dominated by high pressure further tempered by oceanic influences. This results in a generally mild climate. Infrequent interruptions of this climatological pattern include periods of extreme hot weather, winter storms, or "Santa Ana" winds (hot, dry winds blowing from inland deserts).

Temperatures in the Basin are generally mild, increasing inland from the coast. The Long Beach meteorological station is the closest station (with recorded climatological data) to the proposed housing sites. Over the past 30 years, average annual high and low temperatures recorded at Long Beach were 74 and 53 degrees Fahrenheit, respectively (SCAQMD, 1980).

The Basin experiences frequent inversion conditions, where the normal condition (air temperatures decrease with increasing altitude) are reversed. Under an inversion condition, air temperatures increase with increasing altitude. Inversions limit the vertical dispersion of air contaminants, especially in the late morning and early afternoon. They result in increased ground level concentrations of air pollutants, and are a major influence on air quality of the region. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the inversion layer. With sufficient heating, the inversion layer will break, allowing vertical mixing essentially without limit, improving surface air quality.

Most of the annual rainfall in the Basin occurs between November and April. The annual average at Long Beach over the last 40 years is approximately 12 inches. Rainfall totals are extremely variable at Long Beach, and have ranged from 5 to 21 inches per year over the last 40 years. During rainy periods, air quality generally improves, due to unstable atmospheric conditions which allow good vertical mixing and dispersion of pollutants.

Winds in the vicinity of the proposed housing sites blow predominantly from the southwest and west, at relatively low velocities. Wind speeds measured at the Port of Long Beach average about 6 miles per hour. Inland wind speeds are slightly lower than coastal wind speeds. Summer wind speeds average slightly higher than winter wind speeds. Lower wind speeds and a strong temperature inversion limit the vertical dispersion of air pollutants throughout the Basin, increasing ground level air contaminant concentrations.

Strong north or northeasterly winds occur occasionally as a result of strong high pressure systems over the Great Basin. These winds, known as Santa Ana winds, can occur throughout the year, but are most frequent from September through March. The winds are always dry, and can be quite strong and dusty. Strong Santa Ana winds disperse air contaminants, and generally improve Basin air quality. When Santa Ana conditions are weak, polluted air can stagnate along the coastline. When this condition occurs, coastal air quality, which is generally better than inland air quality due to onshore ocean breezes, may become worse than at inland areas.

3.8.2 Air Quality Regulations

3.8.2.1 Air Quality Standards

The federal government, through the EPA, has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the Clean Air Act. There are federal and state ambient air quality standards for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), suspended particulate matter less than ten microns in diameter (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). National primary air quality standards are established at levels necessary to protect the public health with an adequate margin of safety. Similarly, national secondary ambient air quality standards specify the levels of air pollution determined appropriate to protect the public welfare from any known or anticipated adverse effects associated with air contaminants. These primary and secondary standards are listed in Table 3.8-1. In states where these standards are routinely exceeded, the EPA requires preparation of a State Implementation Plan (SIP) for meeting the standards. Federal sanctions are applied to states who fail to adequately plan for attainment.

In addition to the pollutant standards identified in NAAQS, the State of California has also established ambient air quality standards known as the California Ambient Air Quality Standards (CAAQS). These standards are generally more stringent than the corresponding federal standards. They incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. The CAAQS are also listed in Table 3.8-1.

To attain the CAAQS, California has established air quality planning and enforcement activities conducted through statewide and local agencies. The California Air Resources Board (CARB) regulates mobile air pollution sources (such as motor vehicles), and oversees the functions of local air pollution control districts and air quality management districts. These districts in turn administer air quality activities at the regional and county levels throughout the state. The Basin, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties, is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD has the authority to issue permits for stationary sources of air pollution, develop and enforce air quality rules and regulations, and promulgate air quality improvement plans in the Basin.

Air quality in the Basin is monitored by SCAQMD. The Basin fails to achieve federal and state ambient air quality standards for the following air pollutants: O_3 (for which volatile organic compounds and nitrogen oxides are precursors), NO_2, CO, and PM_{10}. The Basin is classified as an extreme nonattainment area for ozone and a serious nonattainment area for CO and PM_{10}.

Table 3.8-1

Federal and State of California Ambient Air Quality Standards

Pollutant Concentration/Averaging Time	Air Quality Standards: Federal Primary	Federal Secondary	State[a]
Ozone (O_3)			
1-hour average, ppm	0.12	0.12	0.09
Carbon Monoxide (CO)			
1-hour average, ppm	35	35	20
8-hour average, ppm	9	9	9
Nitrogen Dioxide (NO_2)			
1-hour average, ppm			0.25
Annual average, ppm	0.053	0.053	
Sulfur Dioxide (SO_2)			
1-hour average, ppm			0.25
3-hour average, ppm		0.50	
24-hour average, ppm	0.14		0.05
Annual average, ppm	0.03		
Suspended Particulate Matter (PM_{10})			
24-hour average, ug/m^3	150	150	50
AGM[a], μg/m^3	50	50	30
Lead (Pb)			
30-day average, μg/m^3			1.5
Calendar quarter, μg/m^3	1.5	1.5	
Sulfate			
24-hour average			25 μg/m^3

Source: SCAQMD, 1993a

a California standards, other than 0_3, CO, SO_2 (1- hour) and PM_{10}, are values that are not to be equaled or exceeded.

ppm parts per million

AGM annual geometric mean

μg/m^3 micrograms per cubic meter of air

Because federal and state ambient air quality standards are exceeded in the Basin, projects are subject to local emission limitations and control measure requirements designed to reduce emissions. The Proposed Action or an alternative would be required to comply with applicable SCAQMD air quality rules, plans and regulations, as described herein.

3.8.2.2 SCAQMD Air Quality Management Plan

The proposed housing sites are located in the Basin, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The proposed housing sites are under the jurisdiction of the SCAQMD, which has regulatory authority over stationary source air pollution control. The SCAQMD and the Southern California Association of Governments (SCAG) jointly regulate air quality planning in the Basin.

The SCAQMD and SCAG jointly prepared an Air Quality Management Plan (AQMP), which was adopted by the two agencies on July 12, 1991. The 1991 AQMP was subsequently revised in 1994 and adopted by the SCAQMD Governing Board on September 16, 1994. The 1994 AQMP presents a comprehensive strategy to bring the Basin into compliance with air quality standards in order to meet California Clean Air Act and Federal Clean Air Act requirements. The Draft 1997 AQMP, which updates the 1994 AQMP and satisfies planning requirements of the Federal and California Clean Air Acts, is in public review.

The AQMP is also a guide for evaluating potential air quality impacts of projects being considered for approval by land use management agencies in SCAQMD's jurisdiction. The plan provides the framework for regional population control efforts, based on a regional forecast of emissions developed by SCAG in 1982. SCAG is responsible for developing regional plans for transportation management, growth, and land use, which can produce regional air quality impacts due to their growth-inducing effects.

SCAG bases its AQMP conformity determination according to the latest SCAG-approved population, housing and employment projections in the project's urban development area. Projects with potential impacts on land use and population are considered to be consistent with the AQMP if their growth characteristics are included in the SCAG emissions forecast, and if they are consistent with local General Plans.

3.8.2.3 EPA Conformity Rule

The EPA has issued regulations clarifying the applicability of, and procedures for ensuring that federal activities comply with, the amended Clean Air Act. The EPA Final Conformity Rule, 40 CFR Parts 93, Subpart B (for federal agencies), and 40 CFR 51, Subpart W (for state requirements), implements Section 176(c) of the Clean Air Act, as amended in 1990, 42 U.S.C. Section 7506(c). This new rule was published in the Federal Register on November 30, 1993, and took effect on January 31, 1994.

The EPA Conformity Rule requires all federal agencies to ensure that any agency activity conforms with an approved or promulgated SIP or Federal Implementation Plan (FIP). Conformity means compliance with a SIP/FIP's purpose of attaining or maintaining the NAAQS. Specifically, this means ensuring the federal activity will not: (1) cause a new violation of the NAAQS; (2) contribute to an increase in the frequency or severity of any violation of the existing NAAQS; or (3) delay the timely attainment of any NAAQS, interim milestones, or other milestones to achieve attainment. The EPA Final Conformity Rule applies to all federal agencies until the applicable state's SIP conformity requirements are approved by EPA.

The new EPA conformity rule requires that total direct and indirect emissions of criteria pollutants, including ozone precursors (i.e., volatile organic compounds and nitrogen oxides) be considered in determining conformity. The Air Force is required to screen conformity-related emissions to ensure that an action is viable with respect to conformity. The Air Force is also required to make a formal Conformity Determination as to whether the Proposed Action complies with the conformity rule of the amended Clean Air Act. The EPA de minimis threshold levels for nonattainment pollutants are shown on Table 3.8-2.

Table 3.8-2

EPA De Minimis Thresholds in Nonattainment Areas

Criteria Pollutant	Degree of Nonattainment	Tons/year
Ozone (VOCs and NOx)	Serious Severe Extreme Other ozone nonattainment areas outside of ozone transport region	50 25 10 100
VOCs	Marginal/moderate nonattainment within ozone transport region	50
NO_2	Marginal/moderate nonattainment within ozone transport region	100
CO	All	100
PM_{10}	Moderate Serious	100 70
Sulfur Dioxide (SO_2)	All	100
Pb	All	25
Source: 40 CFR 93.153 (b)(1)		

3.8.2.4 SCAQMD Rule 1403 - Asbestos Emissions from Demolition/ Renovation Activities

Rule 1403 regulates asbestos emissions from demolition and renovation activities. The requirements of this rule include asbestos surveying, notification, removal procedures, time schedules, handling and clean-up procedures, storage, disposal, and landfilling. Surveying must include the inspection, identification, and quantification of all friable and non-friable ACM, and any physical sampling of materials. If asbestos is identified in the buildings to be demolished, the following regulatory agencies must be notified before initiating any abatement activities:

(1) SCAQMD (if greater than 100 square feet of ACM is to be removed);

(2) State of California Occupational Safety and Health Administration (Cal-OSHA); and

(3) Local fire department.

Under SCAQMD Rule 1403, removal of ACM must be performed by a licensed abatement contractor. All proper controls must be incorporated during abatement activities, including encapsulation of the work area, appropriate personal protective equipment for the abatement workers, and disposal of asbestos wastes to an appropriate landfill. Respective records are required to be maintained, including waste shipment records and the use of appropriate warning labels, signs, and markings. In addition, an asbestos consultant must provide oversight during abatement and conduct clearance sampling.

3.8.3 Air Quality Monitoring

The SCAQMD Long Beach monitoring station (Source/Receptor Area No. 4-South Coast L.A. County) is the closest station to the proposed and alternative housing sites in San Pedro. The ambient air quality measured at this station is considered representative of the source-receptor area for the proposed housing sites. A three-year summary of air quality data for this station is presented on Table 3.8-3.

Table 3.8-3

Summary of Air Quality Data for Long Beach Monitoring Station, 1993 - 1995

Pollutant Concentration/Averaging Time	1993	1994	1995
O_3			
Maximum hourly average concentration, ppm	0.14	0.16	0.11
Number of days exceeding state standard	15	6	3
CO			
Maximum hourly average concentration, ppm	9[a]	12	9
Number of days exceeding state standard (1-hour)	0	0	0
Number of days exceeding state standard (8-hour)	0	1	0
NO_2			
Maximum hourly average concentration, ppm	0.20	0.20	0.21
Number of days exceeding state standard	0	2	0
SO_2			
Maximum hourly average concentration, ppm	0.05	0.04	0.06
Number of days exceeding state standard	0	0	0
PM_{10}			
Maximum 24-hour average concentration, $\mu g/m^3$	86	97[a]	146
Percentage of samples exceeding state standard	19.7	18.3[a]	18.6
Pb			
Maximum concentration, $\mu g/m^3$	0.06	0.04	0.05
Number of days exceeding state standard	0	0	0
Sulfate			
Maximum concentration, 24-hour, $\mu g/m^3$	15.6	17.1	16.9
Number of days exceeding state standard	0	0	0

Source: SCAQMD 1993b, 1994 and 1995

a Less than 12 full months of data; may not be representative

ppm	parts per million
$\mu g/m^3$	micrograms per cubic meter of air

3.9 NOISE

The range of influence for noise sources is the immediate neighborhood surrounding each site and residential properties located along the major access routes that serve each site. Noise is most often defined as unwanted sound. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on humans. The relative magnitude of sound sensation is judged by subjective terms such as "loudness" or "noisiness." Physically, noise is measured and quantified as a sound pressure level in terms of a logarithmic scale in units of decibels (dB).

The human hearing system is not equally sensitive to sound at all frequencies. Because of this variability, a frequency-dependent adjustment called A-weighting has been devised such that sound may be measured in a manner similar to the way the human hearing system responds. The use of the A-weighted sound level is abbreviated "dBA." Figure 3.9-1 provides typical A-weighted noise levels measured for various sources.

When sound levels are recorded at distinct intervals over a period of time, they indicate the distribution of the overall sound level in a community during the measurement period. The most common parameter derived from such measurements is the energy-equivalent sound level (L_{eq}), a noise descriptor that represents the average sound-energy level produced when the actual noise level varies with time. The Air Force has adopted the day-night average sound level, DNL, for evaluating exposure from noise (USAF, 1976). DNL is the A-weighted L_{eq} over a 24-hour period, with a 10 dB nighttime penalty applied to noise events from 10:00 p.m. to 7:00 a.m. The penalty for nighttime noise events accounts for the increased sensitivity of most people to noise in the quiet nighttime hours. Developed by the EPA, DNL is the "standard metric measure for determining the cumulative exposure of individuals to noise." HUD regulations include DNL as the standard for measuring outdoor noise environments (HUD, 1983).

In California, the Community Noise Equivalent Level (CNEL) has been adopted for environmental noise monitoring purposes. For typical outdoor traffic noises, DNL is usually 0.5 to 1 dB less than the CNEL in a given environment. However, for all practical purposes DNL and CNEL are considered equivalent.

3.9.1 Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure time and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, religious institutions, hospitals, nursing homes, auditoriums, parks, and outdoor recreation areas are generally more sensitive to noise than commercial and industrial land uses.

Figure 3.9-1

A-Weighted Noise Levels

3.9.1.1 White Point Navy Housing

The White Point site is located in the middle of a suburban community in a predominantly residential area. Single-family residences are directly to the east on Averill Avenue. The Pacific Heights Air Force housing area is directly west and adjacent to this housing area. Single-family residences are located west of Western Avenue, and White Point Park (a vacant area) is located to the southwest. On the north side of 25th Street are commercial/retail land uses which are directly across from the entrance to the housing area. The residences at Pacific Heights and on Averill Avenue which border the housing area are the primary noise sensitive areas. Residential properties along the access routes that serve the housing area and White Point Park are also sensitive receptors.

3.9.1.2 Montgomery Navy Housing

The community surrounding Montgomery Navy housing is primarily suburban with residential and commercial developments. The housing area is surrounded on three sides by a mix of multi-family and single-family residential land uses. There are condominium and townhome developments located to the south of the site along Stonewood Court. The former Taper Avenue housing site (currently vacant) is located directly east of the Montgomery housing area. To the west of the housing area are single-family residential homes. The primary noise sensitive areas are residences located on Stonewood Court, the Taper Avenue site, and the single-family residences to the west. Residential properties along the access routes that serve the housing area are also sensitive receptors.

3.9.1.3 Fort MacArthur Upper Reservation

The community surrounding the Fort MacArthur Upper Reservation is primarily single-family and multi-family residential properties. Angels Gate Park is located southeast of the proposed housing site. The residential properties located directly north on 30th Street, south on 36th Street, west on Alma Street, and east on Gaffey Street are considered the primary noise sensitive areas. The nearest sensitive receptor is the LAUSD continuation school located southeast of the housing site. Residential properties along the access routes that would serve the housing site are also sensitive receptors.

3.9.2 Existing Noise Levels

3.9.2.1 White Point Navy Housing

The predominant noise source associated with the White Point housing area is surface vehicle traffic. The site is a partially occupied Navy housing area and 8 vacant acres south of the housing area.

Traffic Noise

White Point and the surrounding neighborhood are primarily exposed to noise generated by traffic on the arterials. The distance of noise contours for various DNL were calculated using existing traffic volumes (provided in Chapter 3.2) and the FHWA Highway Traffic Noise Prediction Model FHWA-RD-77-108. Table 3.9-1 provides the existing baseline traffic noise levels. The analysis indicates that residential properties located along portions of Gaffey Street and Western Avenue are exposed to a DNL exceeding 70 dBA. A portion of Route 110 (Gaffey Street) is also exposed to a peak hour L_{eq} exceeding 67 dBA. Residential properties bordering portions of 9th Street, 25th Street, Pacific Avenue and Summerland Avenue are exposed to a DNL exceeding 65 dBA. In addition, portions of White Point Park are exposed to a DNL exceeding 65 dBA. Annual ADT volumes, assumed traffic mix, and assumed speed limits used for the noise analysis are provided in Appendix D (Table D-1).

Noise Measurements

Background noise measurements were obtained in the vicinity of White Point on February 23 and 24, 1995 and June 11, 1996. To establish ambient background noise, noise measurements were obtained at residential property lines, at property lines adjacent to arterials near the housing area, and at locations south and east of the 8-acre site. The results indicate an L_{eq} ranging from 44.1 to 69.8 dBA during peak morning, noon, and afternoon traffic hours. Table 3.9-2 provides noise measurement data at each location. The location of the noise measurements are shown on Figure 3.9-2.

3.9.2.2 Montgomery Navy Housing

The predominant noise source associated with the Montgomery housing site is surface vehicle traffic. The site is currently a partially occupied Navy housing area.

The Montgomery housing site and the surrounding community are primarily exposed to noise generated by traffic on the arterials. The distance of noise contours for various DNL were calculated using existing traffic volumes (provided in Chapter 3.2) and the FHWA Highway Traffic Noise Prediction Model FHWA-RD-77-108. Table 3.9-3 provides the existing baseline traffic noise levels. The analysis indicates that residences located along portions of Palos Verdes Drive and Western Avenue are exposed to a DNL exceeding 70 dBA. Along portions of 1st Street, Westmont Drive, Figueroa Street, and Figueroa Place, residential properties are exposed to a DNL exceeding 65 dBA. Annual ADT volumes, assumed traffic mix, and assumed speed limits used for the noise analysis are provided in Appendix D (Table D-1).

Noise Measurements

Background noise measurements were obtained in the vicinity of the site on February 23 and 24, 1995. Noise measurements were obtained at residential property lines and at property lines adjacent to arterials near the site to establish ambient background noise. The results indicate an L_{eq} ranging from 43.5 to 57.4 dBA during peak morning, noon, and afternoon traffic hours. Table 3.9-2 provides a list of the noise measurement data. The location of the noise measurements are shown on Figure 3.9-3.

3.9.2.3 Fort MacArthur Upper Reservation

The predominant noise source in and around the proposed housing site is surface vehicle traffic. Current on-site noise is generated by activities at the continuation high

Table 3.9-1

Existing Traffic Noise at White Point Housing Site

Roadway	Segment	Distance to Roadway Centerline (ft)			
		DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
9th Street	W of Gaffey Street	57	--	--	--
22nd Street	E of Gaffey Street	--	--	--	--
	W of Pacific Avenue	--	--	--	--
25th Street	W of Gaffey Street	69	--	--	--
	W of Alma Street	72	--	--	--
	E of Alma Street	76	--	--	--
	W of Whites Point Drive	100	--	--	64
	E of Whites Point Drive	90	--	--	--
	W of Western Avenue	127	--	--	78
	E of Western Avenue	101	--	--	64
Route 110	E of Gaffey Street	761	244	88	443
Gaffey Street	S of Summerland Avenue	126	--	--	76
	N of Route 110	128	--	--	77
	S of Route 110	265	87	--	155
	N of 1st Street	265	87	--	155
	S of 1st Street	262	86	--	153
	N of 7th Street	234	78	--	137
	S of 7th Street	215	72	--	126
	N of 9th Street	211	71	--	124
	S of 9th Street	193	65	--	114
	N of 22nd Street	111	--	--	67
	S of 22nd Street	108	--	--	66
	N of 25th Street	101	--	--	62
Alma Street	N of 22nd Street	--	--	--	--
	S of 22nd Street	--	--	--	--
	N of 25th Street	--	--	--	--
Pacific Avenue	N of 22nd Street	82	--	--	--
Summerland Avenue	E of Gaffey Street	70	--	--	--
Whites Point Drive	S of 25th Street	--	--	--	--
Western Avenue	N of 25th Street	213	74	--	126
	S of 25th Street	85	--	--	--

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

Table 3.9-2 Ambient Noise Measurement Data

Position Number	Description	Date	Time	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{dn}	Sources
White Point Housing												
				Measured Noise Level, dBA[a]								
1	Limited measurement at residential offset to Western Ave., 1600 23rd St.	2/24/95 2/23/95 2/23/95	9:30 - 9:45 a.m. 12:43 - 12:58 p.m. 4:29 - 4:44 p.m.	74.3 76.8 74.8	70.9 72.1 72.1	69.3 69.6 72.1	66.8 66.2 67.5	59.1 54.5 59.6	50.3 51.1 52.7	67.9 68.5 68.7		Traffic on Western Ave. Traffic on Western Ave. Traffic on Western Ave.
2	Limited measurement at Play area at Pacific Heights, property line separating White Point	2/24/95 2/23/95 2/23/95	9:00 - 9:15 a.m. 11:50 - 12:05 p.m. 3:45 - 4:00 p.m.	52.0 54.6 57.5	46.8 47.6 52.3	44.6 44.6 48.1	42.5 41.5 45.6	38.6 38.3 43.1	36.5 37.3 42.3	44.1 44.7 48.7		Traffic on 25th St., aircraft Traffic on 25th St., aircraft Traffic on 25th St., aircraft, Children playing nearby
3	Limited measurement at residential property line to Pacific Crest, 10 ft north of 25th Street curb	2/24/95 2/23/95 2/23/95	9:50 - 10:05 a.m. 12:17 - 12:32 p.m. 4:07 - 4:22 p.m.	76.3 77.1 76.5	72.3 72.6 73.3	69.5 69.8 71.1	64.4 66.1 68.0	51.9 53.0 58.5	44.9 45.0 48.3	68.0 68.9 69.8		Traffic on 25th St. Traffic on 25th St. Traffic on 25th St.
4	Limited measurement at easterly property line at intersection of Weymouth and Silvius	6/11/96	10:15 - 10:30 a.m.	53.4	49.8	48.6	48.0	47.1	46.9	48.6		Traffic on Paseo Del Mar
5	Limited measurement at westerly property line in White Point Park	6/11/96	10:45 - 11:00 a.m.	54.2	52.2	51.2	50.1	48.9	48.4	50.5		Traffic on Paseo Del Mar
Montgomery Housing												
6	Limited measurement at residential front yard of 638 Western Ave, 32 ft west of Western Ave curb	2/23/95	9:57 - 10:12 a.m. 1:58 - 2:13 p.m. 5:45 - 6:00 p.m.	76.5 76.5 75.5	72.5 71.5 72.6	70.6 70.1 71.2	67.8 68.0 69.5	58.8 62.1 64.6	52.2 56.6 60.1	69.2 68.9 70.0		Traffic on Western Ave.

Table 3.9-2 Ambient Noise Measurement Data (Cont'd)

Position Number	Description	Date	Time	Measured Noise Level, dBA[a] L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{dn}	Sources
Montgomery Housing (Cont'd)												
7	Limited measurement at property boundary between Taper Ave and Montgomery site, adjacent to play area at corner of John Montgomery Dr. and Taper Ave.	2/23/95	9:15 - 9:30 p.m.	58.9	50.6	47.6	45.6	42.4	40.3	48.4		Traffic on John Montgomery Dr., aircraft traffic Traffic on John Montgomery Dr., aircraft, children playing nearby
			1:39 - 1:54 p.m.	59.7	51.2	46.7	43.2	40.1	38.6	48.3		
			5:21 - 5:36 p.m.	65.5	54.8	51.1	48.5	45.6	44.6	52.7		
8	Limited measurement at residential front yard of 2231 Taper Ave., 10 ft west of Taper Ave. curb	2/23/95	8:48 - 9:03 a.m.	70.3	56.7	49.7	46.0	38.3	36.6	57.4		Traffic on Taper Ave. and Sandwood Pl.
			1:15 - 1:30 p.m.	60.3	53.6	50.5	46.8	42.6	41.1	50.6		Traffic on Taper Ave. and Sandwood Pl.
			5:00 - 5:15 p.m.	63.8	59.7	55.0	49.6	45.0	43.3	55.1		Traffic on Taper Ave. and Sandwood Pl., aircraft and birds
9	Limited measurement at south property line along Sandwood alley	2/23/95	10:30 - 10:45 a.m.	53.6	46.2	42.8	40.0	38.0	37.2	43.5		Distant traffic on Western Ave.
			2:20 - 2:35 p.m.	58.5	47.6	45.3	43.3	39.2	38.3	46.5		Distant traffic on Western Ave.
			6:10 - 6:25 p.m.	60.3	57.1	54.1	46.8	42.3	41.5	52.4		Distant traffic on Western Ave.
Fort MacArthur Upper Reservation												
10	24-hr measurement at residential rear yard at 911 W. 30th Street	8/5/94	7:00 - 8:00 a.m.	57.5	52.5	50.5	48.0	--	--	49.5	48.8	Activities and traffic within the project site
		8/5/94	11:00 - 12:00 p.m.	60.0	51.0	48.0	46.0	--	--	50.0		
		8/5/94	3:00 - 4:00 p.m.	61.5	52.0	48.0	46.0	--	--	49.5		
11	24-hr measurement at residential patio at 3338 S. Gaffey Street	8/9/94	4:00 - 5:00 p.m.	70.5	61.0	58.5	54.0	--	--	58.5	59.1	Traffic on Gaffey St.
		8/10/94	8:00 - 9:00 a.m.	69.0	61.0	57.5	52.0	--	--	57.5		
		8/10/94	1:00 - 2:00 p.m.	74.5	61.0	57.5	52.5	--	--	59.5		
12	Limited measurement at southeast corner of Gaffey and 36th Streets, 10 ft east of Gaffey Street curb	8/9/94	4:52 - 5:02 p.m.	78.2	70.0	66.1	59.6	48.1	45.5	67.0		Traffic on Gaffey St.
		8/9/94	8:28 - 8:38 a.m.	79.9	70.1	66.3	61.1	49.2	46.3	67.3		
		8/10/94	12:05 - 12:15 p.m.	80.9	69.6	64.3	55.2	46.8	44.9	68.3		

Table 3.9-2 Ambient Noise Measurement Data (Cont'd)

Fort MacArthur Upper Reservation (Cont'd)												
				Measured Noise Level, dBA[a]								
Position Number	Description	Date	Time	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{dn}	Sources
13	Limited measurement at residential setback at 918 Paseo Del Mar	8/10/94	1:00 - 1:10 p.m.	70.3	65.3	62.8	58.6	48.8	46.7	61.5		Traffic on Paseo Del Mar
14	24-hr measurement at residential rear yard at 3603 S. Meyler Street	8/9/94	3:00 - 4:00 p.m.	60.1	53.4	49.8	46.3	43.2	41.5	53.0	54.3	Traffic on 36th St. and activities at LAUSD facility
		8/10/94	7:00 - 8:00 a.m.	71.5	57.7	49.6	45.1	41.9	41.0	58.6		
		8/10/94	12:00 - 1:00 p.m.	62.3	52.0	49.2	46.89	43.3	41.4	53.4		
15	24-hr measurement at residential rear yard at 3170 Almeria Street	8/9/94	6:00 - 7:00 p.m.	76.0	66.0	61.0	48.5	--	--	63.0	58.0	Traffic on Alma St.
		8/10/94	7:00 - 8:00 a.m.	68.0	59.5	52.0	45.5	--	--	57.0		
		8/10/94	1:00 - 2:00 p.m.	69.5	58.5	52.0	46.5	--	--	56.5		
16	Limited measurement at Fort MacArthur LAUSD athletic field	8/9/94	4:35 - 4:45 p.m.	55.7	53.5	51.5	49.2	46.2	44.7	50.5		School activities
		8/10/94	9:05 - 9:15 a.m.	60.7	55.8	50.3	50.3	47.2	47.2	52.7		
		8/10/94	12:23 - 12:33 p.m.	60.1	51.7	50.7	49.1	47.4	45.7	50.6		
17	Limited measurement at west setback of Alma and 30th Streets	8/9/94	4:15 - 4:25 p.m.	70.5	60.7	54.1	48.1	44.1	43.1	58.0		Traffic on Alma St.
		8/10/94	8:50 - 9:00 a.m.	71.9	64.3	57.9	44.9	44.9	42.6	50.2		
		8/10/94	12:40 - 12:50 p.m.	71.1	63.8	58.8	43.4	43.4	41.6	60.0		
18	Limited measurement at residential setback at 973 25th Street	8/10/94	9:27 - 9:37 a.m.	77.4	70.7	67.1	61.2	48.9	46.7	66.8		Traffic on 25th St.

[a] L_n is the time-varying noise level which will be exceeded n percent of the time (e.g., L_{10} is the noise level which will be exceeded 10 percent of the time of the sample).

Figure 3.9-2

Location of Noise Measurements in the Vicinity of White Point Navy Housing Site

Table 3.9-3

Existing Traffic Noise in the Vicinity of Montgomery Housing Site

Roadway	Segment	Distance to Roadway Centerline (ft) DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1st Street	E of Figueroa Place	93	--	--	54
Anaheim Street	W of Figueroa Street	175	63	--	105
	W of Figueroa Place	197	69	--	117
	E of Figueroa Place	174	63	--	105
	E of Vermont Avenue	181	65	--	108
	W of Figueroa Street	58	--	--	--
Palos Verdes Drive North	W of Western Avenue	358	124	--	212
John Montgomery Drive	E of Western Avenue	--	--	--	--
Westmont Drive	W of Gaffey Street	69	--	--	--
Figueroa Street	South of 1st Street	95	--	--	58
	N of Anaheim Street	86	--	--	--
Figueroa Place	South of 1st Street	67	--	--	--
	N of Anaheim Street	63	--	--	--
Gaffey Street	N of Anaheim Street	209	73	--	124
	S of Anaheim Street	186	66	--	111
	N of Westmont Drive	181	65	--	108
	S of Westmont Drive	229	79	--	135
Western Avenue	N of Palos Verdes Drive North	135	--	--	82
	S of Palos Verdes Drive North	216	75	--	128
	N of John Montgomery Drive	218	76	--	129
	S of John Montgomery Drive	214	74	--	127

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

Figure 3.9-3

Location of Noise Measurements in the Vicinity of Montgomery Housing Site

school, outdoor education camp, training and skills center, and vehicle body repair shop. Off-site noise is generated by recreational activities at the Angels Gate Cultural Center, outdoor amphitheater, and public swimming pool.

Traffic Noise

The housing site and surrounding community are primarily exposed to noise generated by traffic on the arterials. The distance of noise contours for various DNL and the L_{eq} of 67 dBA were estimated for major roads which could serve the site. The DNL and L_{eq} were calculated using existing year traffic volumes (provided in Chapter 3.2) and the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model FHWA-RD-77-108 (FHWA, 1978). Table 3.9-4 provides the existing baseline traffic noise levels. The analysis indicates that residential properties along portions of Gaffey Street are exposed to a DNL exceeding 70 dBA. A portion of Route 110 (Gaffey Street) is exposed to a peak hour L_{eq} exceeding 67 dBA. At residential properties bordering portions of 9th Street, 25th Street, Pacific Avenue, and Summerland Avenue, the DNL exceeds 65 dBA. Annual average daily traffic (ADT) volumes, assumed traffic mix and assumed speed limits used for the noise analysis are provided in Appendix D (Table D-1).

Noise Measurements

Background noise measurements were obtained in the vicinity of the housing site on August 5, 9, and 10, 1994 . Noise measurements were obtained at residential property lines and at property lines adjacent to arterials near the housing site to establish ambient background noise. The results indicate an L_{eq} ranging from 49.5 to 68.3 dBA during peak morning, noon and afternoon traffic hours. The DNL measured at residential back yards near the proposed housing site ranged from 48.8 to 59.1 dBA. Table 3.9-2 provides noise measurement data for this site. The location of the noise measurements are shown on Figure 3.9-4.

Table 3.9-4

Existing Traffic Noise in the Vicinity of the Fort MacArthur Upper Reservation Site

Roadway	Segment	Distance to Roadway Centerline (ft)			
		DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
9th Street	W of Gaffey Street	57	--	--	--
22nd Street	E of Gaffey Street	--	--	--	--
	W of Pacific Avenue	--	--	--	--
25th Street	W of Gaffey Street	69	--	--	--
	W of Alma Street	72	--	--	--
	E of Alma Street	76	--	--	--
I-110	E of Gaffey Street	761	244	88	443
Gaffey Street	S of Summerland Avenue	126	--	--	76
	N of I-110	128	--	--	77
	S of I-110	265	87	--	155
	N of 1st Street	265	87	--	155
	S of 1st Street	262	86	--	153
	N of 7th Street	234	78	--	137
	S of 7th Street	215	72	--	126
	N of 9th Street	211	71	--	124
	S of 9th Street	193	65	--	114
	N of 22nd Street	111	--	--	67
	S of 22nd Street	108	--	--	66
	N of 25th Street	99	--	--	57
	S of 25th Street	59	--	--	--
	N of 32nd Street	--	--	--	--
	S of 32nd Street	--	--	--	--
	N of Leavenworth Drive	--	--	--	--
	S of Leavenworth Drive	--	--	--	--
Alma Street	N of 22nd Street	--	--	--	--
	S of 22nd Street	--	--	--	--
	N of 25th Street	--	--	--	--
	S of 25th Street	--	--	--	--
Pacific Avenue	N of 22nd Street	82	--	--	--
Summerland Avenue	E of Gaffey Street	70	--	--	--

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

Figure 3.9-4

Location of the Noise Measurements Near the Fort MacArthur Upper Reservation

3.10 BIOLOGICAL RESOURCES

3.10.1 Vegetation

3.10.1.1 White Point Navy Housing

The White Point Navy housing area is situated approximately one-quarter mile from the Pacific Ocean. The site is composed of 16.4 acres of existing housing and 8.0 acres of vacant land south of the housing area.

A biological field reconnaissance study of the existing housing area was conducted February 1, 1995. A developed, residential housing tract, the White Point housing area is landscaped with primarily introduced, ornamental species of trees, shrubs, forbs, and grass lawns. The plants on this property are shown on Table 3.10-1 and are typical of ornamental landscaped areas in southern California. Of the over 240 species of plants observed or expected on the site, 15 are native species. No known native or natural plant communities or habitats occur at the housing area.

The completely developed state of the White Point housing area largely precludes the existence of any candidate, rare, threatened, endangered, or sensitive plant species. Historically, preceding development and urbanization of the White Point housing area, the land was likely composed of coastal bluff scrub, coastal sage scrub, and coastal grassland natural plant communities. No known sensitive habitats or wetlands occur at the site.

A biological field reconnaissance study of the adjacent 8 acres south of the existing housing area was conducted May 23, 1996. The site is mostly sloped, with a flat area at the top approximately 10 to 15 ft wide and a wider flat area at its base. The parcel is considered a grassland with plant composition of primarily non-native, invasive species (Table 3.10-2). Of the 22 species observed on this site, seven are native species. Dominant species include large stands of fennel (*Foeniculum vulgare*), and smaller stands or isolated groups of cheeseweed (*Malva parviflora*), black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), sow thistle (*Sonchus oleraceus*). The sloped area is composed mostly of a mixture of grass species such as wild oats, red brome and blue grass. Along the fence line at the northern edge of the site are planted ornamental trees, and along the fence line at the eastern side is fig-marigold (*Carpobrotus edulis*) which appears to be spreading from neighboring residential properties. At the southeast corner of the site, there are some ornamental trees and shrubs, and a higher density of the non-native, invasive species, probably due to drainage patterns and water runoff from neighboring residences.

The northeast corner of the site includes a large stand of coast prickly pear (*Opuntia littoralis*), several shrubs of California encelia (*Encelia californica*), a few individuals of horehound (*Marrubium vulgare*), and fennel. Extending down the slope from this area, a stand of miniature lupine (*Lupinus bicolor*) occurs near the eastern fence along the property. Lupines are in the same plant family (Fabaceae) as the Palos Verdes blue butterfly host plants locoweed (*Astragalus trichopodus ssp. lonchus*) and deerweed

Table 3.10-1

Plant Species Observed or Expected at White Point Housing Area

Family Name	Scientific Name	Common Name
ACERACEAE	*Acer palmatum*	Japanese maple
AGAVACEAE	*Dracaena* spp.	dracaenas
	Sansevieria trifasciata	bowstring-hemp
AIZOACEAE	*Carpobrotus chilensis*	fig-marigold
	Carpobrotus edulis	fig-marigold
	Mesembryanthemum nodiflorum	slender-leaved iceplant
	Trianthema portulacastrum[a]	horse-purslane
AMARANTHACEAE	*Amaranthus blitoides*[a]	amaranth
AMARYLLIDACEAE	*Brunsvegia rosea*	belladonna or naked lily
	Narcissus spp.	daffodils
ANACARDIACEAE	*Harpephyllum caffrum*	kaffir plum
	Schinus molle	Peruvian peppertree
	Schinus terebinthifolius	Brazilian peppertree
APIACEAE	*Foeniculum vulgare*	fennel
APOCYNACEAE	*Mandevilla* spp.	"Alice du Pont"s
	Nerium oleander	oleander
	Trachelospermum jasminoides	star-jasmine
	Vinca major	periwinkle
AQUIFOLIACEAE	*Ilex* spp.	hollies
ARACEAE	*Caladium bicolor*	fancy-leafed caladium
	Monstera deliciosa	split-leaf philodendron
	Philodendron spp.	philodendrons
ARALIACEAE	*Hedera helix*	English ivy
	Schefflera actinophylla	schefflera
ARAUCARIACEAE	*Araucaria araucana*	monkey puzzle tree
	Araucaria heterophylla	Norfolk Island pine
ARECACEAE	*Arecastrum romanzoffianum*	queen palm
	Phoenix canariensis	Canary Island date palm
	Washingtonia robusta	Mexican fanpalm
ARISTOLOCHIACEAE	*Asarum caudatum*	wild ginger
ASTERACEAE	*Artemisia californica*[a]	California sagebrush
	Artemisia dracunculus	tarragon
	Aster spp.	cultivated asters
	Baccharis pilularis[a]	coyote brush, chaparral broom
	Baccharis salicifolia[a]	mule fat
	Centaurea cineraria	dusty miller
	Chrysanthemum spp.	chrysanthemums
	Conyza canadensis[a]	horseweed
	Coreopsis spp.	coreopsis
	Cotula spp.	brass buttons
	Erigeron spp.	daisies
	Euryops pectinatus	golden euryops
	Gazania spp.	gazania daisies
	Gnaphalium luteo-album	everlasting
	Heterotheca grandiflora[a]	telegraph weed
	Lactuca serriola	prickly lettuce
	Picris echioides	ox-tongue
	Sonchus asper	prickly sow thistle
	Sonchus oleraceus	common sow thistle

Table 3.10-1 (Cont'd)

Family Name	Scientific Name	Common Name
ASTERACEAE (Cont'd)	*Stephanomeria virgata*[a] *Taraxacum officinale*	wirelettuce dandelion
BALSAMINACEAE	*Impatiens* spp.	impatiens, balsam, snapweed
BEGONIACEAE	*Begonia* spp.	begonias
BETULACEAE	*Betula pendula*	European white birch
BIGNONIACEAE	*Clytostoma callistegioides* *Jacaranda mimosifolia*	violet trumpet vine jacarandra
BORAGINACEAE	*Cynoglossum* spp. *Echium* spp.	hound's tongues echiums
BRASSICACEAE	*Alyssum* spp. *Brassica nigra* *Capsella bursa-pastoris* *Descurainia pinnata*[a] *Hirschfeldia incana* *Lobularia maritima* *Raphanus sativus*	alyssum black mustard shepherd's purse tansey mustard shortpod mustard sweet alyssum radish
BROMELIACEAE	*Billbergia nutans*	queen's tears
BUXACEAE	*Buxus microphylla* var. *japonica*	Japanese boxwood
CACTACEAE	*Opuntia ficus-indica*	Indian-fig
CAMPANULACEAE	*Campanula* spp.	bellflowers, harebells
CAPRIFOLIACEAE	*Lonicera hildebrandiana* *Lonicera* spp. *Viburnum* spp.	giant honeysuckle honeysuckles viburnums
CARYOPHYLLACEAE	*Dianthus caryophyllus* *Stellaria media*	carnation common chickweed
CASUARINACEAE	*Casuarina stricta*	coast beefwood, she-oak
CHENOPODIACEAE	*Chenopodium album* *Chenopodium murale*	lamb's quarters goosefoot
COMMELINACEAE	*Tradescantia fluminensis* *Tradescantia* spp.	wandering jew, spiderwort spiderworts
CONVOLVULACEAE	*Convolvulus arvensis* *Convolvulus mauritanicus* *Dichondra micrantha* *Ipomoea* spp.	bindweed ground morning glory dichondra morning glories
CORNACEAE	*Aucuba japonica*	Japanese aucuba
CRASSULACEAE	*Crassula argentea* *Sedum* spp.	jade plant stonecrops
CUPRESSACEAE	*Cupressus sempervirens* *Juniperus chinensis* *Juniperus* spp. *Thuja occidentalis* *Thuja orientalis*	Italian cypress Chinese juniper junipers American arborvitae Oriental arborvitae
ERICACEAE	*Arctostaphylos* sp. *Rhododendron* spp.	manzanita azaleas, rhododendrons

Table 3.10-1 (Cont'd)

Family Name	Scientific Name	Common Name
EUPHORBIACEAE	*Chamaesyce albomarginata*[a]	rattlesnake weed
	Chamaesyce serpyllifolia[a]	thyme-leafed spurge
	Ricinus communis	castor bean
	Sapium sebiferum	Chinese tallow-tree
FABACEAE	*Acacia baileyana*	Bailey acacia
	Acacia dealbata	acacia
	Acacia longifolia	Sydney golden wattle
	Albizia distachya	plume albizia
	Albizia julibrissin	silk tree
	Bauhinia forficata	orchid tree
	Calliandra eriophylla	fairy duster
	Cassia spp.	cassia, senna
	Ceratonia siliqua	carob, St. John's bread
	Erythrina humeana	natal coral tree
	Lupinus spp.	lupines
	Medicago polymorpha	burclover
	Melilotus alba	white sweetclover
	Spartium junceum	Spanish broom
	Trifolium repens	white clover
	Wisteria sinensis	wisteria
FAGACEAE	*Quercus* spp.	oaks
GERANIACEAE	*Erodium cicutarium*	storksbill, filaree
	Erodium moschatum	storksbill, filaree
	Geranium spp.	geraniums
GESNERIACEAE	*Streptocarpus* spp.	cape primroses
GINKGOACEAE	*Ginkgo biloba*	ginkgo
HAMAMELIDACEAE	*Liquidambar styraciflua*	sweet gum, liquidambar
IRIDACEAE	*Iris* spp.	irises
LAMIACEAE	*Ajuga reptans*	carpet bugle
	Lavandula spp.	lavenders
	Marrubium vulgare	horehound
	Mentha spp.	mints
	Rosmarinus officinalis	rosemary
LAURACEAE	*Cinnamomum camphora*	camphor tree
	Persea spp.	avocados
	Umbellularia californica[a]	California bay or laurel
LILIACEAE	*Agave americana*	century plant
	Aloe saponaria	aloe
	Asparagus setaceus	fern asparagus
	Brodiaea spp.	brodiaeas
	Chlorophytum comosum	spider plant
	Lilium spp.	lilies
	Yucca gloriosa	Spanish dagger
LOGANIACEAE	*Buddleja davidii*	butterfly bush, summer lilac
LYTHRACEAE	*Cuphea hyssopifolia*	false heather
MAGNOLIACEAE	*Magnolia grandiflora*	magnolia
MALVACEAE	*Hibiscus rosa-sinensis*	Chinese hibiscus
	Malva neglecta	common mallow
	Malva parviflora	cheeseweed
MELIACEAE	*Melia azederach*	Chinaberry, umbrella tree

Table 3.10-1 (Cont'd)

Family Name	Scientific Name	Common Name
MORACEAE	*Broussonetia papyrifera*	paper mulberry
	Ficus benjamina	weeping Chinese banyan
	Ficus carica	common fig
	Ficus elastica	rubber plant
	Ficus macrophylla	Moreton Bay fig
	Ficus microcarpa	Indian laurel fig
	Ficus rubiginosa	rustyleaf fig
	Morus alba	white mulberry
MUSACEAE	*Musa paradisiaca* var. *seminifera*	banana
	Musa spp.	bananas
MYOPORACEAE	*Myoporum laetum*	myoporum
	Myoporum spp.	myoporums
MYRICACEAE	*Myrica californica*[a]	Pacific wax myrtle
MYRTACEAE	*Angophora costata*	gum myrtle
	Callistemon citrinus	lemon bottlebrush
	Chamelaucium uncinatum	Geraldton waxflower
	Eucalyptus camaldulensis	red gum
	Eucalyptus globulus	blue gum
	Eucalyptus pulverulenta	silver mountain gum
	Eucalyptus spp.	eucalyptus, gums
	Leptospermum spp.	tea trees
	Melaleuca spp.	melaleucas
NYCTAGINACEAE	*Bougainvillea glabra*	bougainvillea
OLEACEAE	*Jasminum* spp.	jasmines
	Olea europaea	olive
ONAGRACEAE	*Fuchsia hybrida*	fuchsia
ORCHIDACEAE	*Cymbidium* spp.	cymbidium orchids
OXALIDACEAE	*Oxalis corniculata*	oxalis, shamrock
	Oxalis pes-caprae	Bermuda buttercup
PASSIFLORACEAE	*Passiflora alatocaerulea*	passion vine
PHILADELPHACEAE	*Carpenteria californica*	tree-anemone
	Philadelphus mexicanus	evergreen mock orange
PINACEAE	*Cedrus deodora*	deodar cedar
	Pinus canariensis	Canary Island pine
	Pinus halepensis	Aleppo pine
	Pinus mugo	Swiss mountain pine
	Pinus radiata	Monterey pine
	Pinus spp.	pines
PITTOSPORACEAE	*Pittosporum tobira*	tobira
	Pittosporum undulatum	Victorian box
PLANTAGINACEAE	*Plantago lanceolata*	English plantain
	Plantago major	common plantain
PLUMBAGINACEAE	*Plumbago auriculata*	cape plumbago
POACEAE	*Arundo donax*	giant reed
	Avena barbata	slender wild oat
	Avenua fatua	wild oat
	Bromus catharticus	rescue grass
	Bromus diandrus	ripgut
	Bromus madritensis ssp. *rubens*	red brome, foxtail chess
	Cortaderia selloana	pampas grass
	Cynodon dactylon	Bermuda grass
	Digitaria sanguinalis	crabgrass

Table 3.10-1 (Cont'd)

Family Name	Scientific Name	Common Name
POACEAE (Cont'd)	*Hordeum murinum* ssp. *glaucum*	barley
	Lolium multiflorum	Italian ryegrass
	Lolium perenne	perennial ryegrass
	Paspalum dilatatum	dallis grass
	Poa annua	bluegrass
	Stenotaphrum secundatum	St. Augustine grass
	Vulpia myuros	fescue
PODOCARPACEAE	*Podocarpus* spp.	podocarpus
POLYGONACEAE	*Eriogonum giganteum*[a]	St. Catherine's lace
	Polygonum arenastrum	common knotweed
	Rumex acetosella	sheep sorrel
	Rumex crispus	curly dock
POLYPODIACEAE	*Blechnum* spp.	ferns
	Nephrolepis exaltata	Boston sword fern
PORTULACACEAE	*Portulaca oleracea*	common purslane
PRIMULACEAE	*Cyclamen* spp.	cyclamens
PROTEACEAE	*Grevillea rosmarinifolia*	rosemary grevillea
RANUNCULACEAE	*Clematis* spp.	clematis, virgin's bower
	Delphinium spp.	larkspurs, delphiniums
RHAMNACEAE	*Ceanothus* spp.	California lilacs
ROSACEAE	*Heteromeles arbutifolia*[a]	toyon, Christmas berry
	Photinia spp.	photinias
	Prunus persica	peach
	Pyracantha angustifolia	firethorn
	Pyracantha coccinea	firethorn, pyracantha
	Rhaphiolepis indica	India hawthorn
	Rosa spp.	roses
RUBIACEAE	*Gardenia jasminoides*	gardenia
RUTACEAE	*Calodendrum capense*	cape chestnut
	Citrus spp.	lemons, oranges, limes
SAPINDACEAE	*Cupaniopsis anacardioides*	carrot wood
SAXIFRAGACEAE	*Heuchera* spp.	alum root, coral bells
	Hydrangea spp.	hydrangeas
	Saxifraga spp.	saxifrages
SCROPHULARIACEAE	*Hebe elliptica*	hebe
SOLANACEAE	*Cestrum* spp.	cestrums, jessamines
	Lycopersicon esculentum	tomato
STERCULIACEAE	*Brachychiton acerifolius*	flame tree
STRELITZIACEAE	*Strelitzia reginae*	bird of paradise
TAXODIACEAE	*Sequoia sempervirens*	coast redwood
THEACEAE	*Camellia japonica*	Japanese camellia
TROPAEOLACEAE	*Tropaeolum majus*	garden nasturtium
ULMACEAE	*Ulmus parviflora*	Chinese elm
VERBENACEAE	*Lantana camara*	lantana
	Lantana montevidensis	trailing lantana
VITACEAE	*Cissus rhombifolia*	grape-ivy

[a] Native California species

Plant nomenclature follows Hickman (1993), Hogan (1991), Munz (1973 and 1974), and Bailey (1949)

Table 3.10-2

Plant Species Observed at White Point 8-Acre Site

Family Name	Scientific Name	Common Name
AIZOACEAE	*Carpobrotus edulis*	fig-marigold
APIACEAE	*Foeniculum vulgare*	fennel
ARECACEAE	*Washingtonia robusta*	Mexican fanpalm
ASTERACEAE	*Baccharis pilularis*[a] *Encelia californica*[a] *Heterotheca grandiflora*[a] *Sonchus oleraceus*	coyote brush California encelia telegraph weed common sow thistle
BRASSICACEAE	*Brassica nigra* *Raphanus sativus*	black mustard wild radish
CACTACEAE	*Opuntia littoralis*[a]	coast prickly pear
CHENOPODIACEAE	*Salsola tragus*	Russian thistle, tumbleweed
EUPHORBIACEAE	*Chamaesyce polycarpa*[a]	prostrate spurge
FABACEAE	*Melilotus alba* *Lupinus bicolor*[a] *Melitotus indicus*	white sweetclover minature lupine yellow sweet clover
LAMIACEAE	*Marrubium vulgare*	horehound
MALVACEAE	*Malva parviflora*	cheeseweed
POACEAE	*Avenua fatua* *Bromus madritensis* ssp. *rubens* *Poa annua*	wild oat red brome, foxtail chess bluegrass
POLYGONACEAE	*Eriogonum elongatum var. elongatum*[a]	long-stemmed buckwheat
SOLANACEAE	*Nicotiana glauca*	tree tobacco

[a] Native California species
Plant nomenclature follows Hickman (1993), Hogan (1991), Munz (1993 and 1974) and Bailey (1949)

(*Lotus scoparius*), but lupines have not been observed to be a host plant for this butterfly. The lupine stand is distributed over an area approximately 30 ft by 30 ft, beginning midway down the slope and extending down towards the base of the slope. This area, beginning at the northeast corner and including the lupine stand, represents a few species indicative of what was probably originally coastal sage scrub, and if left undisturbed, may provide suitable habitat for other native successional species to become established. Leguminous locoweed or milkvetch, the food host plant of the federally-listed, endangered Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) and its larvae (see Subchapter 3.10.3), once grew in the San Pedro area (USAF, 1984, 1986a and 1986b). This species is now presumed extirpated in most of the area. Suitable conditions for providing habitat for the Palos Verdes blue butterfly host food plant once existed adjacent to, and southeast of, the White Point housing area. Small populations of the locoweed were growing approximately one-fifth mile southwest of the White Point housing area (USAF, 1986a and 19866b). In the spring of 1994, locoweed and Palos Verdes blue were observed on DLA property approximately 6 miles north of the White Point site (Lawson, 1995). The Palos Verdes blue was also discovered using a second host food plant, deerweed or California broom (*Lotus scoparius*), previously not known to be used by Palos Verdes blue. Deerweed is a common legume that is widely distributed throughout California. Presently, no suitable habitat for the Palos Verdes blue butterfly host food plants occurs on the site. However, the lupine area on the northeast portion of the site represents potential habitat for these host plant species.

Approximately 50 feet from the southwest corner of the 8-acre site, but outside of the housing area, is a remnant area of coastal sage scrub, which was probably the dominant vegetation type of this area before land disturbances. Plant cover was much higher in this area before land disturbances. Species observed included primarily California sagebrush (*Artemisia californica*) and California encelia as codominant shrubs. Some individuals of horehound (*Marrubium vulgare*) and coyote brush (*Baccharis pilularis*) were also observed.

3.10.1.2 Montgomery Navy Housing

The Montgomery Navy housing area is situated approximately 6 miles north of the White Point housing site. A biological field reconnaissance study was conducted February 1, 1995. The area is a developed, residential housing tract which is landscaped with largely introduced, ornamental species of trees, shrubs, forbs, and grass lawns. The plants on this property are typical of ornamental landscaped areas in southern California, as shown on Table 3.10-3. The area is generally developed and contains no native or natural plant communities or habitats. The urbanized, landscaped vegetation on the site is comprised of ornamental or cultivar species (planted by man) of trees, shrubs, decorative perennial forbs, and grass lawns. Of the nearly 200 species found on this site (Table 3.10-3), only seven are native species. In addition to the ornamental or cultivar plants, there are numerous ruderal or weedy species found in lawn and fence line areas. No known native or natural plant communities or habitats occur at the housing area.

The completely developed state of the housing area largely precludes the chance for any candidate, rare, threatened, endangered, or sensitive plant species to exist at either site. Historically, preceding development and urbanization of the Montgomery Navy housing area, vegetative communities probably would have been coastal sage scrub, coastal grassland, and chaparral (Navy, 1994a). No known sensitive habitats or wetlands occur at the Montgomery Navy housing area. However, Palos Verdes blue and its host plants, locoweed and deerweed, were observed approximately 0.5 to 1.0 mile north of the Montgomery housing area on DLA property in the spring of 1994 (Lawson, 1995).

Table 3.10-3

Plant Species Observed or Expected at Montgomery Housing Site, San Pedro

Family Name	Scientific Name	Common Name
ACERACEAE	*Acer palmatum*	Japanese maple
AGAVACEAE	*Dracaena* spp.	dracaenas
	Sansevieria trifasciata	bowstring-hemp
AIZOACEAE	*Carpobrotus chilensis*	fig-marigold
	Carpobrotus edulis	fig-marigold
	Mesembryanthemum nodiflorum	slender-leaved iceplant
	Trianthema portulacastrum[a]	horse-purslane
AMARANTHACEAE	*Amaranthus blitoides*[a]	amaranth
AMARYLLIDACEAE	*Brunsvegia rosea*	belladonna or naked lily
	Narcissus spp.	daffodils
ANACARDIACEAE	*Schinus molle*	Peruvian peppertree
	Schinus terebinthifolius	Brazilian peppertree
APIACEAE	*Foeniculum vulgare*	fennel
APOCYNACEAE	*Nerium oleander*	oleander
	Trachelospermum jasminoides	star-jasmine
	Vinca major	periwinkle
ARACEAE	*Philodendron* spp.	philodendrons
	Monstera deliciosa	split-leaf philodendron
ARALIACEAE	*Hedera helix*	English ivy
	Schefflera actinophylla	schefflera
ARECACEAE	*Phoenix canariensis*	Canary Island date palm
	Washingtonia robusta	Mexican fanpalm
ASTERACEAE	*Aster* spp.	cultivated asters
	Baccharis salicifolia[a]	mule fat
	Chrysanthemum spp.	chrysanthemums
	Conyza canadensis[a]	horseweed
	Coreopsis spp.	coreopsis
	Erigeron spp.	daisies
	Euryops pectinatus	golden euryops
	Gazania spp.	gazania daisies
	Gnaphalium luteo-album	everlasting
	Heterotheca grandiflora[a]	telegraph weed
	Lactuca serriola	prickly lettuce
	Picris echioides	ox-tongue
	Sonchus asper	prickly sow thistle
	Sonchus oleraceus	common sow thistle
	Stephanomeria virgata[a]	wirelettuce
	Taraxacum officinale	dandelion
BALSAMINACEAE	*Impatiens* spp.	impatiens, balsam, snapweed
BEGONIACEAE	*Begonia* spp.	begonias
BETULACEAE	*Betula pendula*	European white birch
BIGNONIACEAE	*Jacaranda mimosifolia*	jacarandra

Table 3.10-3 (Cont'd)

Family Name	Scientific Name	Common Name
BRASSICACEAE	*Brassica nigra*	black mustard
	Capsella bursa-pastoris	shepherd's purse
	Descurainia pinnata[a]	tansey mustard
	Hirschfeldia incana	shortpod mustard
	Lobularia maritima	sweet alyssum
	Raphanus sativus	radish
BUXACEAE	*Buxus microphylla* var. *japonica*	Japanese boxwood
CACTACEAE	*Opuntia ficus indica*	Indian fig
CAPRIFOLIACEAE	*Lonicera hildebrandiana*	giant honeysuckle
	Lonicera spp.	honeysuckles
CARYOPHYLLACEAE	*Dianthus caryophyllus*	carnation
	Stellaria media	common chickweed
CHENOPODIACEAE	*Chenopodium album*	lamb's quarters
	Chenopodium murale	goosefoot
	Kochia scoparia	summer-cypress
	Salsola tragus	Russian thistle, tumbleweed
COMMELINACEAE	*Tradescantia fluminensis*	wandering jew, spiderwort
	Tradescantia spp.	spiderworts
CONVOLVULACEAE	*Convolvulus arvensis*	bindweed
	Ipomoea spp.	morning glories
CORNACEAE	*Aucuba japonica*	Japanese aucuba
CRASSULACEAE	*Crassula argentea*	jade plant
	Sedum spp.	stonecrops
CUPRESSACEAE	*Cupressus sempervirens*	Italian cypress
	Juniperus chinensis	Chinese juniper
	Juniperus spp.	junipers
	Thuja occidentalis	American arborvitae
	Thuja orientalis	Oriental arborvitae
ERICACEAE	*Arctostaphylos* sp.	manzanita
	Rhododendron spp.	azaleas, rhododendrons
EUPHORBIACEAE	*Chamaesyce albomarginata*[a]	rattlesnake weed
	Ricinus communis	castor bean
	Sapium sebiferum	Chinese tallow-tree
FABACEAE	*Acacia baileyana*	Bailey acacia
	Acacia dealbata	acacia
	Acacia longifolia	Sydney golden wattle
	Albizia distachya	plume albizia
	Albizia julibrissin	silk tree
	Bauhinia forficata	orchid tree
	Ceratonia siliqua	carob, St. John's bread
	Erythrina humeana	natal coral tree
	Medicago polymorpha	burclover
	Melilotus alba	white sweetclover
	Trifolium repens	white clover
	Wisteria sinensis	wisteria
GERANIACEAE	*Erodium cicutarium*	storksbill, filaree
	Erodium moschatum	storksbill, filaree
	Geranium spp.	geraniums

Table 3.10-3 (Cont'd)

Family Name	Scientific Name	Common Name
HAMAMELIDACEAE	*Liquidambar styraciflua*	sweet gum, liquidambar
IRIDACEAE	*Iris* spp.	irises
LAMIACEAE	*Ajuga reptans*	carpet bugle
	Lavandula spp	lavenders
	Marrubium vulgare	horehound
	Rosmarinus officinalis.	rosemary
LAURACEAE	*Cinnamomum camphora*	camphor tree
	Persea spp.	avocados
LILIACEAE	*Agave americana*	century plant
	Aloe saponaria	aloe
	Chlorophytum comosum	spider plant
	Lilium spp.	lilies
	Yucca gloriosa	Spanish dagger
	Lilium spp.	lilies
LOGANIACEAE	*Buddleja davidii*	butterfly bush, summer lilac
LYTHRACEAE	*Cuphea hyssopifolia*	false heather
MAGNOLIACEAE	*Magnolia grandiflora*	magnolia
MALVACEAE	*Hibiscus rosa-sinensis*	Chinese hibiscus
	Malva neglecta	common mallow
	Malva parviflora	cheeseweed
MORACEAE	*Broussonetia papyrifera*	paper mulberry
	Ficus benjamina	weeping Chinese banyan
	Ficus carica	common fig
	Ficus elastica	rubber plant
	Ficus microcarpa	Indian laurel fig
	Ficus rubiginosa	rustyleaf fig
	Morus alba	white mulberry
MUSACEAE	*Musa paradisiaca* var. *seminifera*	banana
	Musa spp.	bananas
MYOPORACEAE	*Myoporum laetum*	myoporum
MYRTACEAE	*Callistemon citrinus*	lemon bottlebrush
	Eucalyptus camaldulensis	red gum
	Eucalyptus globulus	blue gum
	Eucalyptus pulverulenta	silver mountain gum
	Leptospermum spp.	tea trees
	Melaleuca spp	melaleucas
NYCTAGINACEAE	*Bougainvillea glabra*	bougainvillea
OLEACEAE	*Jasminum* spp.	jasmines
	Olea europaea	olive
ONAGRACEAE	*Fuchsia hybrida*	fuchsia
OXALIDACEAE	*Oxalis corniculata*	oxalis, shamrock
	Oxalis pes-caprae	Bermuda buttercup
PINACEAE	*Pinus canariensis*	Canary Island pine
	Pinus halepensis	Aleppo pine
	Pinus mugo	Swiss mountain pine
	Pinus sp.	pine
PITTOSPORACEAE	*Pittosporum tobira*	tobira

Table 3.10-3 (Cont'd)

Family Name	Scientific Name	Common Name
PLANTAGINACEAE	*Plantago lanceolata*	English plantain
	Plantago major	common plantain
plumbaginaceae	*Plumbago auriculata*	cape plumbago
	Arundo donax	giant reed
POACEAE	*Avena barbata*	slender wild oat
	Avenua fatua	wild oat
	Bromus catharticus	rescue grass
	Bromus diandrus	ripgut
	Bromus madritensis ssp. *rubens*	red brome, foxtail chess
	Cortaderia selloana	pampas grass
	Cynodon dactylon	Bermuda grass
	Digitaria sanguinalis	crabgrass
	Echinochloa crus-galli	barnyard grass
	Hordeum murinum ssp. *glaucum*	barley
	Lolium multiflorum	Italian ryegrass
	Lolium perenne	perennial ryegrass
	Paspalum dilatatum	dallis grass
	Poa annua	bluegrass
	Stenotaphrum secundatum	St. Augustine grass
	Vulpia bromoides	fescue
	Vulpia myuros	fescue
	Arundo donax	giant reed
POLYGONACEAE	*Polygonum arenastrum*	common knotweed
	Rumex acetosella	sheep sorrel
POLYPODIACEAE	*Blechnum* spp.	ferns
	Nephrolepis exaltata	Boston sword fern
PORTULACACEAE	*Portulaca oleracea*	common purslane
PROTEACEAE	*Grevillea rosmarinifolia*	rosemary grevillea
ROSACEAE	*Photinia* spp.	photinias
	Prunus persica	peach
	Pyracantha angustifolia	firethorn
	Pyracantha coccinea	firethorn, pyracantha
	Rhaphiolepis indica	India hawthorn
	Rosa spp.	roses
RUBIACEAE	*Gardenia jasminoides*	gardenia
RUTACEAE	*Citrus* spp.	lemons, oranges, limes
SAXIFRAGACEAE	*Hydrangea* spp.	hydrangeas
SCROPHULARIACEAE	*Hebe elliptica*	hebe
SOLANACEAE	*Lycopersicon esculentum*	tomato
STRELITZIACEAE	*Strelitzia reginae*	bird of paradise
STERCULIACEAE	*Brachychiton acerifolius*	flame tree
TAXODIACEAE	*Sequoia sempervirens*	coast redwood
THEACEAE	*Camellia japonica*	Japanese camellia
TROPAEOLACEAE	*Tropaeolum majus*	garden nasturtium
ULMACEAE	*Ulmus parviflora*	Chinese elm

Table 3.10-3 (Cont'd)

Family Name	Scientific Name	Common Name
VERBENACEAE	*Lantana camara*	lantana
	Lantana montevidensis	trailing lantana
VITACEAE	*Cissus rhombifolia*	grape-ivy

[a] Native California species
Plant nomenclature follows Hickman (1993), Hogan (1991), Munz (1973 and 1974) and Bailey (1949)

3.10.1.3 Fort MacArthur Upper Reservation

Fort MacArthur Upper Reservation is a developed, urbanized parcel of land. Biological field studies were conducted on the site August 17 and 18, 1994. Subsequent field observations for sensitive species were conducted on June 15, 1995. Most of the plants are non-native, introduced species typical of disturbed areas in southern California. Vegetational composition at the housing site is also comprised of numerous cultivar species (i.e., plants originating and persistent under cultivation) typically used in urban landscapes, and of weedy species of grasses and forbs (herbaceous, non-grass species) which dominate the open, undeveloped fields and grassy areas such as the athletic field. Shrubs and trees are also present. Historically through the present, the site has been significantly altered by human practices of mowing, disking, herbicide spraying, and other methods to help control fire potential. Such practices have benefited the weedy, ruderal species, which are highly adapted to grow in physically disturbed conditions.

The housing site occupies approximately 26.7 acres of vegetated and developed areas as described above. Of the total, 21.1 acres are vegetated, plant-covered areas. The remaining 5.6 acres support buildings, paved and unpaved parking areas, and roads. Table 3.10-4 lists 80 species of plants observed on-site during August 1994 ground-truthing surveys. The Fort MacArthur Upper Reservation site is clearly dominated by non-native plant species. Only 11.25 percent, or nine of the 80 plant species recorded at the site, are native California species.

Abundance is defined as the number of individuals of a species in an area, population, or community. With the exception of rattlesnake weed, none of the nine native plant species observed are common or abundant on the housing site (although most are common to abundant elsewhere in southern California). Rattlesnake weed is an aggressive, weedy type native found in many disturbed and undisturbed habitats on dry slopes and fields throughout southern California (Munz and Keck, 1973; Munz, 1974; and Hickman, 1993). Even the one native grass species, slender wheatgrass, is not typical for the region and was probably inadvertently included in a seed mix used for revegetation purposes in past years. Slender wheatgrass is usually found in less disturbed open areas, and in forest and woodland habitats. No remnants of coastal grassland, coastal sage scrub, or southern coastal bluff scrub habitats were noted at the site.

There is no classification or term (other than disturbed) for the habitat type or vegetation type at the Fort MacArthur Upper Reservation housing site as there is with more natural plant communities and habitats. No candidate, rare, threatened, endangered

Table 3.10-4

Plant Species Observed at Fort MacArthur Upper Reservation

Family Name	Scientific Name	Common Name
AIZOACEAE	*Carpobrotus chilensis*	fig-marigold
	Carpobrotus edulis	fig-marigold
AMARANTHACEAE	*Amaranthus blitoides*[a]	amaranth
AMARYLLIDACEAE	*Brunsvigia rosea*	belladonna lily, naked lady
ANACARDIACEAE	*Harpephyllum caffrum*	kaffir plum
	Schinus terebinthifolius	Brazilian peppertree
APIACEAE	*Foeniculum vulgare*	fennel
ARALIACEAE	*Hedera helix*	English ivy
ARECACEAE	*Phoenix canariensis*	Canary Island date palm
	Washingtonia robusta	Mexican fanpalm
ASCLEPIDACEAE	*Asclepias fascicularis*[a]	narrow-leaf milkweed
ASTERACEAE	*Baccharis salicifolia*[a]	mule fat
	Conyza canadensis[a]	horseweed
	Heterotheca grandiflora[a]	telegraph weed
	Lactuca serriola	prickly lettuce
	Picris echioides	ox-tongue
	Silybum marianum	milk thistle
	Sonchus asper	prickly sow thistle
	Sonchus oleraceus	common sow thistle
	Taraxacum officinale	dandelion
	Tragopogon porrifolius	salsify, oyster plant
BRASSICACEAE	*Brassica nigra*	black mustard
	Descurainia pinnata[a]	tansey mustard
	Hirschfeldia incana	shortpod mustard
	Raphanus sativus	radish
BUDDLEJACEAE	*Buddleja davidii*	butterfly-bush
CACTACEAE	*Opuntia ficus indica*	Indian fig
CHENOPODIACEAE	*Atriplex semibaccata*	Australian saltbush
	Chenopodium album	lamb's quarters
	Kochia scoparia	summer-cypress
	Salsola tragus	Russian thistle, tumbleweed
CONVOLVULACEAE	*Convolvulus arvensis*	bindweed
CRASSULACEAE	*Crassula argentea*	jade plant
CUPRESSACEAE	*Juniperus chinensis*	Chinese juniper
EUPHORBIACEAE	*Chamaesyce albomarginata*[a]	rattlesnake weed
	Ricinus communis	castor bean
	Sapium sebiferum	Chinese tallow-tree
FABACEAE	*Ceratonia siliqua*	carob, St. John's bread
	Medicago sativa	alfalfa, lucerne
	Melilotus alba	white sweetclover
	Trifolium repens	white clover
GERANIACEAE	*Erodium cicutarium*	storksbill, filaree
LAMIACEAE	*Marrubium vulgare*	horehound

Table 3.10-4 (Cont'd)

Family Name	Scientific Name	Common Name
LILIACEAE	*Agave americana*	century plant
	Yucca gloriosa	Spanish dagger
MAGNOLIACEAE	*Magnolia grandiflora*	magnolia
MALVACEAE	*Abutilon hydridum*	flowering maple
	Malva neglecta	common mallow
	Malva parviflora	cheeseweed
MYOPORACEAE	*Myoporum laetum*	myoporum
MYRTACEAE	*Eucalyptus globulus*	blue gum
OXALIDACEAE	*Oxalis corniculata*	oxalis, shamrock
	Oxalis pes-caprae	Bermuda buttercup
PINACEAE	*Pinus canariensis*	Canary Island pine
	Pinus halepensis	Aleppo pine
PITTOSPORACEAE	*Pittosporum tobira*	tobira
	Pittosporum undulatum	Victorian box
PLANTAGINACEAE	*Plantago major*	common plantain
POACEAE	*Avena barbata*	slender wild oat
	Bromus catharticus	rescue grass
	Bromus diandrus	ripgut
	Bromus madritensis ssp. *rubens*	red brome, foxtail chess
	Cortaderia selloana	pampas grass
	Cynodon dactylon	Bermuda grass
	Digitaria sanguinalis	crabgrass
	Elymus trachycaulus ssp. *trachycaulus*[a]	slender wheatgrass
	Hordeum murinum ssp. *glaucum*	barley
	Lolium multiflorum	Italian ryegrass
	Lolium perenne	perennial ryegrass
	Paspalum dilatatum	dallis grass
	Piptatherum miliaceum	smilo grass
	Stenotaphrum secundatum	St. Augustine grass
POLYGONACEAE	*Polygonum arenastrum*	common knotweed
	Rumex acetosella	sheep sorrel
	Rumex crispus	curly dock
PORTULACACEAE	*Portulaca oleracea*	common purslane
ROSACEAE	*Heteromeles arbutifolia*[a]	toyon (Christmas berry)
	Pyracantha angustifolia	firethorn
	Rhaphiolepis indica	India hawthorn
TROPAEOLACEAE	*Tropaeolum majus*	garden nasturtium

[a] Native California species
Plant nomenclature follows Hickman (1993), Hogan (1991), Munz (1973 and 1974), and Bailey (1949)

or sensitive plant species observed at the housing site. Historically, before development and urbanization of the San Pedro and Palos Verdes Peninsula areas, vegetation on the site was likely coastal sage scrub, coastal grassland and southern coastal bluff scrub (Munz, 1974; Holland, 1986; Hickman, 1993; and CDFG, 1994). There are no known sensitive habitats or wetlands on-site.

The housing site is surrounded by an urbanized, landscaped area. To the west and northwest is Rolling Hills, which still contains remnant, patchy areas of coastal sage scrub. Locoweed, deerweed and Palos Verdes blue were not observed on the site during August 1994 and June 1995 site surveys.

Dominant species observed in the open, undeveloped field areas include smilo grass (*Piptatherum miliaceum*), ryegrasses (*Lolium multiflorum* and *L. perenne*), fennel, ox-tongue (*Picris echioiodes*), prickly lettuce (*Lactuca serriola*), and black mustard. Portions of the site, such as the grassy area of the athletic field, are populated with weedy species that include Bermuda grass (*Cynodon dactylon*), Saint Augustine grass (*Stenotaphrum secundatum)*, dallis grass (*Paspalum dilatatum*), common knotweed (*Polygonum arenastrum*), white clover (*Trifolium repens*), common plantain (*Plantago major*), Australian saltbush (*Atriplex semibaccata*), amaranth (*Amaranthus blitoides*), and dandelion (*Taraxacum officinale*). Areas such as the slopes in and around the historic Battery Barlow-Saxton are dominated by two species of fig-marigold (often misnamed as "ice-plant"), *Carpobrotus chilensis* and *C. edulis*. Common shrub and tree species scattered across the site include Canary Island date palm (*Phoenix canariensis*), blue gum (*Eucalyptus globulus*), Spanish dagger (*Yucca gloriosa*), and India hawthorn (*Rhaphiolepis indica*).

3.10.2 Wildlife

3.10.2.1 White Point Navy Housing

Due to the lack of native vegetation and natural terrestrial habitats on-site, the faunal species inhabiting the White Point housing area would be typical residential-type wildlife as shown on Table 3.10-5. Although plant species diversity is high (mostly non-natives), the White Point site is considered to be of relatively poor quality for use by wildlife. Due to its proximity to the ocean and the presence of more open space nearby, the White Point housing area has a greater potential for larger numbers and a higher diversity of wildlife to frequent the area. Wildlife habitat quality within the White Point housing area is relatively low except for the presence of large trees and shrubs providing some perching, nesting, and/or roosting areas for birds. No protected or special status wildlife species were recorded at the White Point housing area.

The adjacent 8 acres south of the White Point housing area is undeveloped with small areas of vegetation within the open, sloped grassy area. Less faunal diversity and density would be expected at this site. Some rabbit (*Sylvilagus sp.*) scat was observed in the northeast section of the site, near an assemblage of coast prickly pear and California encelia. This area, and extending down the slope would provide the best wildlife habitat. The high density and abundance of non-native plant species found at the site should accompany the density and abundance of wildlife species expected in this disturbed environment. Faunal species expected in this area are tolerant of urbanized, disturbed conditions.

3.10.2.2 Montgomery Navy Housing

The Montgomery site supports a very small diversity of wildlife species. Wildlife at the site would be similar to species shown on Table 3.10-5. Tracks of raccoon,

Table 3.10-5

Animal Species Observed at White Point Site, San Pedro

Scientific Name	Common Name
Reptiles	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Birds	
Larus occidentalis	western gull
Larus californicus	California gull
Charadrius vociferus	killdeer
Buteo jamaicensis	red-tailed hawk
Falco sparverius	American kestrel
Zenaida macroura	mourning dove
Columba livia	rock dove
Streptopelia chinensis	spotted dove
Calypte anna	Anna's hummingbird
Corvus brachyrhynchos	American crow
Aphelocoma coerulescens	scrub jay
Mimus polyglottos	northern mockingbird
Sturnus vulgaris	European starling
Euphagus cyanocephalus	Brewer's blackbird
Melospiza melodia	song sparrow
Carpodacus mexicanus	house finch
Passer domesticus	house sparrow
Mammals	
Didelphis (marsupialis) virginiana	opossum
Procyon lotor	raccoon
Mus musculus	house mouse
Sylvilagus bachmani	brush rabbit
Canis domesticus	domestic dog
Felis catus	house cat
Spermophilus beecheyi	California ground squirrel
Thomomys bottae	Botta's pocket gopher

Reptile nomenclature follows Stebbins (1985)
Avian nomenclature follows Peterson (1990)
Mammal nomenclature follows Jameson and Peeters (1988)

oppossum, and domestic cat were observed in muddy areas along the north fenceline perimeter of the site. Bird species observed or heard at the site included mourning dove, American crow, house finch, song sparrow, house sparrow, and northern mockingbird. No amphibian species were recorded. No protected or special status wildlife species were recorded at the Montgomery housing area.

Habitat quality for wildlife at the Montgomery site is marginal except for the presence of perching, nesting or roosting areas in large pine and eucalyptus trees. No candidate, rare, threatened, endangered, or sensitive animal species were observed at this site. The completely developed state of the site largely eliminates the possibility for any protected or special status animal species to inhabit the property.

3.10.2.3 Fort MacArthur Upper Reservation

The Fort MacArthur Upper Reservation housing site supports a small diversity of wildlife species. Biological diversity is defined as the number of species found together in an ecosystem. Due to the lack of native vegetation and habitats, the animal species which inhabit or visit the housing site are fairly typical of faunal species associated with, and tolerant of, urbanized conditions. Consequently, species diversity and numbers of individual animals of each species are less than those found in natural communities and habitats elsewhere. Although the diversity and numbers of weedy plant species and cultivars on-site are fairly high, the potential for these plants to provide ample, usable cover and food sources for wildlife is lower than more natural, native habitats.

Two reptile, 28 bird, and 6 mammal species were observed on the site during two days of field recording (Table 3.10-6). The reptiles were western fence lizard (*Sceloporous occidentalis*) and side-blotched lizard (*Uta stansburiana*). Commonly observed birds were western gull (*Larus occidentalis*), California gull (*Larus californicus*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), spotted dove (*Streptopelia chinensis*), cliff swallow (*Hirundo pyrrhonota*), barn swallow (*Hirundo rustica*), American crow (*Corvus brachyrhynchos*), scrub jay (*Aphelocoma coerulescens*), northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*). Mammal species commonly seen on the site, or diagnostic sign observed (tracks, scat, etc.), included Botta's pocket gopher (*Thomomys bottae*), house mouse (*Mus musculus*), and brush rabbit (*Sylvilagus bachmani*). All of these animal species are often associated with urbanized developments and are tolerant of human activities.

The wildlife field survey was conducted during the summer (August 17 and 18, 1994) when many bird species are absent due to seasonal migrations, thus lowering the total numbers and diversity observed. Wildlife observed during field surveying were mainly diurnal (daytime-active) species. No nighttime surveys for wildlife species were conducted because no species protected or sensitive under legal jurisdictions are anticipated at the site. In effect, most crepuscular (dawn/ dusk-active) or nocturnal animals (red fox, coyote, raccoon, opossum, striped skunk, owl, etc.) are so abundant, or of introduced status (as opposed to native), that such surveys at night to determine on-site presence is unwarranted. Crepuscular and nocturnal species have been observed by neighboring residents and may be present at the housing site.

Many species of birds and small mammals benefit from the seed food supply of weedy plant species. The animal species observed on-site can typically utilize seed supplies from weedy species found in disturbed, urbanized conditions, such as those on

Table 3.10-6

Animal Species Observed at Fort MacArthur Upper Reservation

Scientific Name	Common Name
Reptiles	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Birds	
Larus occidentalis	western gull
Larus californicus	California gull
Sterna elegans	elegant tern
Charadrius vociferus	killdeer
Buteo jamaicensis	red-tailed hawk
Cathartes aura	turkey vulture
Falco sparverius	American kestrel
Zenaida macroura	mourning dove
Columba livia	rock dove
Streptopelia chinensis	spotted dove
Calypte anna	Anna's hummingbird
Archilochus alexandri	black-chinned hummingbird
Sayornis saya	Say's phoebe
Aeronautes saxatalis	white-throated swift
Hirundo pyrrhonota	cliff swallow
Hirundo rustica	barn shallow
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Aphelocoma coerulescens	scrub jay
Thryomanes bewickii	Bewick's wren
Mimus polyglottos	northern mockingbird
Turdus migratorius	American robin
Sturnus vulgaris	European starling
Euphagus cyanocephalus	Brewer's blackbird
Molothrus ater	brown-headed cowbird
Melospiza melodia	song sparrow
Carpodacus mexicanus	house finch
Passer domesticus	house sparrow
Mammals	
Canis domesticus	domestic dog
Felis catus	house cat
Spermophilus beecheyi	California ground squirrel
Thomomys bottae	Botta's pocket gopher
Mus musculus	house mouse
Sylvilagus bachmani	brush rabbit

Reptile nomenclature follows Stebbins (1985)
Avian nomenclature follows Peterson (1990)
Mammal nomenclature follows Jameson and Peeters (1988)

the Upper Reservation. The populations of these animal species can increase in response to such non-native food sources and available cover. Certain wildlife (e.g., house sparrows, house finches, crows, rock doves, spotted doves, starlings and house mice) opt for living near man, preferring areas of human disturbance or landscaping. Scattered eucalyptus and Canary Island date palm trees, and abundant fennel plants and non-native grasses on the site provide some cover, perching sites, nesting areas, and food sources for city-dwelling animal species.

Although habitat conditions at the project site are very disturbed and of low quality for native plant and animal species, the site does provide niches and places for organisms to exist, regardless of their status as native or introduced species. Over 100 species of plants and animals have been observed at the housing site, making it diverse and abundant in terms of resident species.

3.10.3 Threatened, Endangered and Special Status Species

3.10.3.1 White Point Navy Housing

No candidate, rare, threatened, endangered or other special status species of plants or animals were observed at the White Point housing area or in the adjacent 8 acres. Habitat type and site conditions preclude the possibility for any such biological resources to exist on-site. However, the potential exists for such plant and animal species to inhabit the region. Sensitive plants and animals as listed by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG) and the California Native Plant Society (CNPS) for the San Pedro area are shown on Table 3.10-7.

Sensitive Plants

As shown on Table 3.10-7, six species of sensitive/protected plants have the potential to exist in the region. These plants were not found at the White Point Navy housing area in 1995, or in the adjacent 8 acres in 1996. Habitat conditions at the site preclude the possibility for any of these plant species to exist on-site. Information on the status of these species is taken from the records of the Rarefind electronic datafile of the California Natural Diversity Data Base (CNDDB) (CDFG, 1994), and from the CNPS inventory of rare and endangered vascular plants (CNPS, 1994). The coastal bluffs at White Point may potentially have niches of habitat to support individuals of aphanisma and/or bright green dudleya. Neither species was observed on the 8-acre site south of the housing area. The coastal bluff locality is situated outside the boundaries of the housing site.

Sensitive Animals

Fifteen species of sensitive/protected animals in the region of the White Point site are listed by the USFWS and CDFG. Off-site coastal bluff habitat and beaches south of the White Point site may have the potential to support individuals of California least tern, California gnatcatcher and San Diego horned lizard. This coastal bluff habitat is located outside of the housing site.

Table 3.10-7

Sensitive Plants and Animals Potentially Existing in the San Pedro Area, Los Angeles County, California

Scientific Name	Common Name	Federal Status	State Status	Remarks/Habitat
Plants				
Arenaria paludicola	marsh sandwort	E	E	Stoloniferous perennial herb; freshwater marsh habitats along coast below 300 ft elevation.
Astragalus tener var. *titi*	coastal dunes milk-vetch	Proposed E	E	Annual herb; coastal bluff scrub and coastal dune habitats less than 300 ft elevation.
Pentachaeta lyonii	Lyon's pentachaeta	Proposed E	E[a]	Annual herb; coastal habitats less than 500 ft elevation; usually found in chaparral and valley/foothill grassland ecotones.
Aphanisma blitoides	aphanisma	[b]	none[a]	Annual herb; coastal shrubland, bluffs and sand less than 300 ft elevation in coastal bluff scrub and coastal scrub habitats.
Dudleya virens	bright green dudleya	[b]	none[a]	Succulent perennial herb; rocky outcrops, coastal bluff cliff areas, chaparral/coastal scrub habitats less than 1,300 ft elevation.
Fremontodendron mexicanum	Mexican flannelbush	[b]	R[a]	Evergreen shrub; in chaparral, closed-cone coniferous forests, and cismontane woodlands at 1,000 to 3,000 ft elevation; prefers borders of creeks or dry canyons.
Birds				
Haliaeetus leucocephalus	bald eagle	E	E	Late winter/early spring migrant; found most often near seacoast, large rivers, and lakes; feeds mostly on fish and birds along the coast; nests in cliff ledges or tall trees.
Pelecanus occidentalis	brown pelican	E	E	Nests colonially on coastal islands; breeds, roosts, and feeds in flocks on fish along coast; rare inland.
Falco peregrinus	peregrine falcon	E	E	Inhabits open wetlands near coast, and open country near cliffs; introduced by man in some urban areas; catches birds on the wing; eats some insects; nests on the ground on ledges.
Rallus longirostris levipes	light-footed clapper rail	E	E	Occupies and nests in saltmarsh habitats; feeds in shallow water and on mudflats; diet comprised of small fish, crabs, crayfish, insects and some plants; nests in grasses and aquatic plants placed on the ground.
Charadrius alexandrinus nivosus	Western snowy plover (coastal population)	T	CSC	Inhabits barren sandy beaches and flats; feeds along surf line on marine worms and small crustaceans; nests in shallow depression on flat or open sandy beach.
Sterna antillarum browni	California least tern	E	E	Colonial breeder on bare or sparsely vegetated flat substrates (i.e., sandy beaches, alkali flats, landfills, and paved areas); nests along coast, San Francisco Bay to northern Baja California.
Polioptila californica	California gnatcatcher	T	none	Obligate, permanent resident of coastal sage scrub less than 2,500 ft elevation in southern California; prefers low, coastal sage scrub in arid washes, also slopes and mesas; does not occupy all areas classified as coastal sage scrub
Agelaius tricolor	tricolored blackbird	[b]	none	Colonial nester near freshwater and marshy areas; colonies prefer heavy growth of cattails and tules; sea level to 3,400 ft elevation; nomadic resident of Sacramento and San Joaquin Valleys and low foothills of Sierra Nevada; sighted in past at Harbor Lake in San Pedro area.

Table 3.10-7 (Continued)

Scientific Name	Common Name	Federal Status	State Status	Remarks/Habitat
Birds (Cont'd)				
Coccyzus americanus occidentalis	western yellow-billed cuckoo	none	E	Likes to nest in riparian thickets of willows and cottonwoods with understory of nettles, wild grapes or blackberries; prefers broad, lower flood-bottoms of larger river systems; formerly known from Los Angeles River drainage between Long Beach and Compton.
Fish				
Eucyclogobius newberryi	tidewater goby	E	CSC	Found in brackish water habitats in shallow lagoons and lower stream reaches; needs fairly still but not stagnant water with high oxygen levels; feed on detritus.
Mammals				
Perognathus longimembris pacificus	Pacific pocketmouse	E	CSC	Inhabits valleys and slopes within sage scrub and chaparral; feeds mainly on small seeds.
Reptiles				
Phrynosoma coronatum blainvillei	San Diego horned lizard	[b]	none	Subspecies of more common coast horned lizard; prefers friable, rocky or shallow sandy soils in coastal sage scrub and chaparral in arid and semi-arid climates.
Snails				
Tryonia imitator	California brackishwater snail	[b]	none	Lives subtidally, inhabits variety of sediment types; tolerant of wide salinity ranges in coastal lagoons and salt marshes, Sonoma County to San Diego County.
Insects				
Cicindela hirticollis gravida	tiger beetle	[b]	none	Inhabits clean, dry, light-colored sand in upper zone adjacent to non-brackish water along southern California coast.
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue	E	none	Restricted to cool, fog-shrouded, seaward side of Palos Verdes Hills; locoweed (*Astragalus trichopodus* var. *lonchus*, family FABACEAE) and deerweed (*Lotus scoparius)* are host plants of larvae.[c]

Source: USFWS, 1996

[a] On California Native Plant Society List 1B: plants rare, threatened, or endangered in California and elsewhere.

[b] This is a former Category 2 candidate species. In accordance with the February 28, 1996 Federal Register, USFWS has changed the criteria and definitions for candidate species of plants and animals. Currently, only former Category C1 Candidate species are considered candidates. That is, candidate species are species for which USFWS has enough scientific information to warrant proposing them for listing as endangered or threatened under the Endangered Species Act. Listing is possibly appropriate, but substantial data on biological vulnerability and threats are not currently known or on file to support the immediate preparation of rules. All former Category 2 and Category 3 Candidate species are no longer considered as candidates, and now have no official status (but should still be considered in development planning).

[c] Observed in 1994 on DLA property approximately 5 miles north of Fort MacArthur Upper Reservation (Lawson, 1995).

CSC CDFG "Species of Special Concern" are: taxa that are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California; population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California; taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forests).

E Endangered

R Rare

T Threatened

none Not listed as a sensitive species by the appropriate agency (i.e., USFWS and/or CDFG)

The Palos Verdes blue butterfly is listed on Table 3.10-7 as a federal endangered species associated with leguminous locoweed and deerweed as its host plant. Adult butterflies lay eggs on the locoweed leaves. When the larvae hatch, they feed only on the developing flowers and seedpods. Locoweed occupies shale or sandstone outcrops on brushy hills and coastal sage scrub.

The 8-acre parcel of land south of the existing housing was surveyed in 1993 and 1996, and host plants for the Palos Verdes blue butterfly (locoweed and deerweed) were not observed. Potential habitat for the host plants exists in the northeast corner of the site, and extending down the slope along the eastern border, as described in Subchapter 3.10.1.1.

Sensitive Habitats

There are no known or observed sensitive habitats located on the White Point housing area or the adjacent 8 acres. However, the southern coastal bluff scrub habitat type is listed by CNDDB (CDFG, 1994) as sensitive. Certain floral, geographic or geologic elements of this habitat type may be present along the coastal bluffs at White Point, outside of the housing site.

3.10.3.2 Montgomery Navy Housing

No candidate, rare, threatened, endangered or other special status species of plants or animals were observed at the Montgomery housing area. Habitat type and site conditions preclude the chance for any such biological resources to exist on-site. However, the potential exists for such plant and animal species to inhabit the region. USFWS, CDFG and CNPS list the same species of plants or animals for the Montgomery housing area as for the Fort MacArthur Upper Reservation housing site (see Table 3.10-7).

Sensitive Plants

Six species of sensitive/protected plants have the potential to exist in the region, but were not found at the Montgomery Navy housing site in 1995. Sensitive plant species listed by the CNDDB (CDFG, 1994) and the CNPS (1994) for the area are shown on Table 3.10-7.

Sensitive Animals

Fifteen species of sensitive/protected animals in the region of the Montgomery housing area are listed by the USFWS and CDFG, as shown on Table 3.10-7.

Sensitive Habitats

There are no known or observed sensitive habitats located on the Montgomery housing area. However, the southern coastal bluff scrub habitat type is listed by CNDDB (CDFG, 1994) as sensitive.

3.10.3.3 Fort MacArthur Upper Reservation

No candidate, rare, threatened, endangered or other special status species of plants or animals were observed at the Fort MacArthur Upper Reservation housing site. Habitat type and site conditions preclude the possibility for any such biological resource to exist at the site. However, the potential exists for such plant and animal species to exist in the region. These species are listed in Table 3.10-7.

Sensitive Plants

Six species of sensitive/protected plants have the potential to exist in the region encompassing the Fort MacArthur Upper Reservation (Table 3.10-7). These plants were not found during field surveys conducted on the site in 1994 and 1995.

As host plant to the endangered Palos Verdes blue (Subchapter 3.10.3.1), the locoweed was previously recorded at the Fort MacArthur Upper Reservation off Merriam Drive north of the main gate (USAF, 1986b; EP, 1989), but was not observed during the 1994 or 1995 field surveys.

The most recent locoweed observation was made in the spring of 1994 on the DLA property located approximately 5 miles north of the Fort MacArthur Upper Reservation (see Figure 2.6-3) (Lawson, 1995). Palos Verdes blue was also seen, and it was also using deerweed (*Lotus scoparius*) as a host plant. Deerweed was not observed on the Fort MacArthur Upper Reservation during the 1994 or 1995 surveys. Locoweed flowering time is generally March through June, or slightly later, and deerweed flowering time is generally March through August (Munz and Keck, 1973). If locoweed or deerweed was present at the housing site, it would have been readily identifiable during the June 1995 survey.

Sensitive Animals

Fifteen species of sensitive/protected animals have the potential to exist in the Fort MacArthur Upper Reservation region (see Table 3.10-7). These animals were not found during field surveys conducted on the site in 1994. Status information and habitat requirements are provided in CNDDB Rarefind reports (CDFG, 1994).

With the exception of the locoweed and deerweed, and their association to Palos Verdes blue butterfly habitat, conditions on the housing site preclude the chance for any of the sensitive and protected animal species listed in Table 3.10-7 to exist on the site. Neither locoweed, deerweed, nor Palos Verdes blue butterflies were observed on the housing site during the 1994 and 1995 field surveys.

Sensitive Habitats

There are no known or observed sensitive habitats located on the Fort MacArthur Upper Reservation housing site. The CNDDB (CDFG, 1994) lists only one sensitive habitat in the region, southern coastal bluff scrub. This habitat type is located on coastal bluffs and steep slopes of the Palos Verdes Peninsula from Malaga Cove to Cabrillo Beach, with some patchy distribution in developed and disturbed areas occupied by humans. None of the plant species which distinguish southern coastal bluff scrub as a sensitive habitat type were recorded at the housing site.

3.11 CULTURAL RESOURCES

3.11.1 Cultural Setting

Human occupation in the San Pedro area began about 7,000 years ago, with small groups of people who utilized local plants and animals abundantly available near the coast. When the Spanish arrived in California in 1542, they found a group of Native Americans inhabiting the Los Angeles Basin. These people came to be known as the Gabrielino due to their association with Mission San Gabriel. The Gabrielino were intensive hunter-gatherers who used both coastal and inland resources. They caught or collected seasonally occurring foods, and lived in either permanent or semi-permanent villages along major inland streams or coastal estuaries. Seasonally, they moved to temporary gathering camps, and collected plant foods such as acorns, buckwheat, chia, berries, and fruits. They also periodically established camps when gathering shellfish and hunting waterfowl along the coast or in estuaries. With the founding of Mission San Gabriel in 1771, the Gabrielinos were incorporated into the Spanish mission system.

One of the earliest land grants, Rancho San Pedro, encompassed most of modern San Pedro, including the areas of the potential project sites. In 1784, Governor Pedro Fages granted the land to Juan Jose Dominguez. However, in 1822, the independent Mexican government replaced Spanish rule. Jose Dolores Sepulveda successfully argued that his family be granted the Rancho de Los Palos Verdes portion of the Rancho San Pedro (Petra Resources, 1994b).

After 1850, with California a part of the United States, the Land Commission soon heard petitions to divide the ranchos, including Rancho San Pedro. By 1882, Jotham Bixby had received deed to the largest part of Rancho de Los Palos Verdes, including the proposed housing sites (Petra Resources, 1994b). San Pedro incorporated in 1888, but later voted to consolidate with the City of Los Angeles in 1908.

The US government purchased the 116-acre Fort MacArthur Upper Reservation in 1910. In 1914, construction of the military reservation, named in honor of Lieutenant General Arthur MacArthur (father of Douglas MacArthur) began. Three gun batteries, Batteries Osgood-Farley, Leary-Merriam, and Barlow-Saxton, were constructed on the coastal artillery site by 1919 (USACE and LAHD, 1992). These gun emplacements were ready to defend Los Angeles and San Pedro harbors. They were designed to fire 700-pound shells at a steep trajectory to penetrate the thinly armored decks of naval vessels of that era (Petra Resources, 1994b).

Between 1943 and 1945, the major artillery at the installation was dismantled. The fort was converted to a separation center and recruit training center, and continued as such until the early 1950s, when a series of ground-to-air missile systems were employed as part of an air defense program (EP, 1989). When this system also became obsolete in the 1970s, the government classified much of the fort as surplus area and the Army transferred both the Upper and Lower Reservations to the City of Los Angeles. The

Middle Reservation was transferred to the Air Force in 1982, after the Air Force exercised its option to take over the land.

The Navy started operations within the San Pedro and Long Beach areas by 1938. The US Naval Station at Terminal Island was established in 1946, and served as the home port for naval ships. In 1973, DOD realigned the Navy programs, and renamed the facility the Long Beach Naval Station. Military housing for enlisted Navy personnel and their families is located in the surrounding communities. These housing complexes include the Montgomery and White Point housing areas constructed in the 1960s.

3.11.2 National Historic Preservation

The National Historic Preservation Act of 1966 (PL 89-665; 80 Stat. 915; 16 USC 470) sets forth a national policy of historic preservation. The act defines the term historic preservation as "...the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture." The act also:

(1) Establishes the National Register of Historic Places (NRHP) to include resources of state and local, as well as national significance;

(2) Establishes the President's Advisory Council on Historic Preservation;

(3) Provides for states to conduct statewide surveys and prepare State Historic Preservation Plans;

(4) Authorizes grants by the Secretary of the Interior to the states to support surveys, planning, and preservation activities; and

(5) Prescribes certain procedures (Section 106) to be followed by federal agencies in the event that a Proposed Action might affect significant properties.

Section 106 of the National Historic Preservation Act, as amended and implemented by 36 CFR 800, pertains when sites listed on, or eligible for inclusion in, the NRHP will be affected by federally funded, assisted, or licensed projects. The responsible agency is to consult with the State Historic Preservation Officer (SHPO) and, where necessary, with the Keeper of the National Register (Secretary of Interior). Procedures for reviewing projects are set forth in 36 CFR 800, to determine whether a project may affect properties listed on, or eligible for listing on, the NRHP. Additional review procedures are established for those instances where an adverse effect can be established. To achieve compliance with Section 106, the SHPO must concur with the findings of the cultural resources study and any proposed mitigative actions.

The Archaeological and Historical Preservation Act (PL 86-523 et seq.) applies when a federal agency finds, or is notified in writing by an appropriate historical or archaeological authority, that its activities, in conjunction with any federal construction project or federally-licensed project, activity, or program may cause irreparable loss or destruction of significant prehistoric, historic, or archaeological data. The agency is to notify the Secretary of the Interior in writing, and is to provide the Secretary with appropriate information concerning the project, program, or activity.

The American Indian Religious Freedom Act (42 USC 1996) states that it shall be the policy of the United States to protect and preserve for American Indians their inherent right to freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aluet, and Native Hawaiian. This includes, but is not limited to: access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. The purpose of the Act is to require federal agencies to consider, but not necessarily to defer to, Indian religious values; it does not prohibit agencies from adopting all land uses that conflict with traditional Indian religious beliefs or practices.

3.11.3 Historic Resources

3.11.3.1 White Point Navy Housing

A cultural resources investigation and field survey of the White Point Navy housing area were performed in June 1995 (Petra Resources, 1995d). A subsequent survey of the additional 8 acres south of the housing area was conducted in June 1996 (Petra Resources, 1996b). The results of these investigations are summarized below, and in Chapter 4.11. No other systematic cultural surveys have been previously conducted for this site, but several studies have been conducted immediately outside the housing site boundaries.

Construction of the 78 Navy housing units has substantially altered the ground surface in the area. No surface historical material was noted during the 1995 field survey (Petra Resources, 1995d). A review of the historical topographic maps, the NRHP, California Inventory of Historic Resources, and California Historic Landmarks found no known historical structures or landmarks on the site or in its immediate vicinity (Petra Resources, 1995d). Due to the extensive grading for construction of the existing housing, the potential for buried historical artifacts and features is low.

The White Point 8-acre area adjacent and south of existing housing is vacant with an abandoned asphalt road bisecting the property along the western and southern perimeter. The study area extends fifty feet to the west and south beyond the asphalt road. The White Point 8-acre parcel is vacant and undeveloped except for six former military gun emplacements along the edge of the upper terrace just south of the east/west fence enclosing the recreational area.

Dense vegetation reduced surface visibility to approximately 15 percent overall. Rodent activity is prevalent throughout the area and several apparent geological testing areas were also present. These areas were closely examined for any indication of buried archaeological materials. The surface soil consists of dark brown clayey sediments which overlie lighter brown more silty sediments. Sandstone and shale cobbles and gravels are present throughout the area, as are naturally occurring chunks of cherty shale, occasionally used for prehistoric tool manufacture. The presence of Monterey Formation bedrock was exposed on the surface and in the rodent burrows and geological backdirt. The remains of military coastal defense facilities having six gun emplacements were identified along the edge of the upper terrace, approximately 16 to 20 meters south of the fence line enclosing the recreational area. These gun emplacements extend along the edge of the terrace from the eastern side to just above the asphalt road on the western side and are oriented toward views of the Pacific Ocean. All gun emplacements appear to be excavated into the hillside and extend to various depths (Petra Resources, 1996b). The Army Seacoast Artillery located gun emplacements, numerous pillboxes, artillery observations stations, and support facilities on the 170.77-acre White Point property in 1942 (Navy, 1996). The six structures appear to be related to these activities.

All six gun emplacements are constructed of rather crude concrete mixed with gravels, pebbles, and in some cases rubble. Reinforcement of the concrete is evidenced by some of the rebar exposed in the walls or on the surface. Because this property was not owned or used by the military until 1942, it is likely that these installations are related to the World War II coastal defense activities. Because specific information on these installations is not available in the literature, their function in the coastal defense system is unknown at this time (Petra Resources, 1996b). A few small shell fragments were noted on the surface. The survey was negative for visible prehistoric remains such as discolored organic midden type soil, features, artifacts, or faunal remains. It is possible, however, that prehistoric remains may be present but were obscured by the dense vegetation which restricted surface visibility (Petra Resources, 1996b).

3.11.3.2 Montgomery Navy Housing

A cultural investigation and field survey of the Montgomery Navy housing area were performed in June 1995 (Petra Resources, 1995d). The results of these investigations are summarized below, and in Chapter 4.11. No other systematic cultural surveys have been previously conducted for this site, but several studies have been conducted for the surrounding areas.

Construction of the Navy housing has substantially altered the ground surface in the housing area. No surface historical material was noted during the 1995 field survey (Petra Resources, 1995d). A review of the historical topographic maps, the NRHP, California Inventory of Historic Resources, and California Historic Landmarks found no known historical structures or landmarks on the site or in its immediate vicinity (Petra Resources, 1995d). Due to the extensive grading for construction of the existing housing, the potential for buried historical artifacts and features is low.

3.11.3.3 Fort MacArthur Upper Reservation

A cultural investigation and field reconnaissance was performed on the Upper Reservation in August, 1994 (Petra Resources, 1994b). The survey and report reviewed the area of Fort MacArthur Upper Reservation housing site, and the results of this investigation are summarized below, and in Chapter 4.11. Two other systematic cultural surveys were previously conducted in the vicinity: (1) a field reconnaissance of open areas in the southeast portion of the Upper Reservation (Frierman, 1989); and (2) a systematic survey of the proposed LAUSD Fort MacArthur Educational Complex (White et al., 1989).

Development of Fort MacArthur in 1915 substantially altered topography of the entire Upper Reservation. Installation of the fort included general grading, and the construction of protective earthworks and pads for roads and buildings. Grading included cuts into the terrace slopes.

There are approximately 40 remaining military buildings on the Upper Reservation; only 18 date to the World War I era (EP, 1989). These single and double story buildings include barracks, mess halls, lavatories, storehouses, and a guardhouse. They were apparently intended to be temporary, because many lack plumbing, and their construction is simple. Several newer structures were constructed after World War I and during the World War II period. Their style of construction includes both wood-framed, asbestos-paneled buildings and corrugated steel buildings (EP, 1989). Buildings located within the boundaries of the Upper Reservation housing site date from the World War II period.

The Battery Barlow-Saxton is located within the boundaries of the housing site. Due to its unique character and good condition, it was placed on the NRHP in 1982. The battery is a harbor defense artillery emplacement representative of a defense system in existence during the period from 1915 to 1945 (Petra Resources, 1994b). The Battery Barlow-Saxton is one of ten points of interest on the self-guided historic walking tour of the Fort MacArthur Upper Reservation. The tour is sponsored by the Fort MacArthur Military Museum, which is open on weekends.

The cultural resource field surveys of the housing site found no evidence of non-structural surface historical material (Frierman, 1989; White et al., 1989; Petra Resources, 1994b). No subsurface historical material was noted during monitoring of two seismic test trenches excavated on the housing site in 1995 (Petra Resources, 1995c). However, much of the housing site is covered with structures or vegetation, restricting observation of surface historic remains. There is a potential to encounter buried historic remains, due to the extended historical use of the site.

3.11.4 Archaeological Resources

3.11.4.1 White Point Navy Housing

Although there are no known archaeological sites on the existing housing site or on the adjacent 8-acre parcel, recent excavations in the area indicate that prehistoric remains can still exist in a highly developed, urbanized setting. Due to the presence of known archaeological sites in the vicinity, there is a potential to encounter buried archaeological materials at the site (Petra Resources, 1995d and 1996b).

3.11.4.2 Montgomery Navy Housing

No archaeological sites have been documented on the Montgomery site. However, several archaeological sites have been documented within a one-mile radius.

Excavations at these sites, which yielded high quantities of fish remains and artifacts such as fishhooks, indicate prehistoric occupations of this area as early as 5,000 to 1,000 BC (Petra Resources, 1995b). These recent excavations confirm that prehistoric remains still exist in this highly disturbed, urbanized area. Due to the presence of known archaeological sites in the vicinity, there is a potential to encounter buried archaeological materials at the site (Petra Resources, 1995d).

3.11.4.3 Fort MacArthur Upper Reservation

No archaeological sites have been documented at the housing site. However, several archaeological sites have been identified within a one mile radius. Excavations conducted in 1990 at two sites in the area yielded fishhooks and midden deposits indicating a reliance on marine resources (Petra Resources, 1994b). These investigations confirm that archaeological resources may still exist in highly urban and disturbed areas.

No evidence of surface archaeological remains were found during any of the cultural resource field surveys conducted on the housing site (Frierman, 1989; White et al., 1989; Petra Resources, 1994b). No subsurface archaeological material was noted during monitoring of two seismic test trenches excavated on the housing site in 1995 (Petra Resources, 1995c). However, much of the site is covered with structures or vegetation. Due to the presence of known archaeological sites in the vicinity, there is a potential to encounter buried archaeological materials at the site.

3.12 SOCIOECONOMICS

3.12.1 Population

The population of Los Angeles County increased from 7,477,200 in 1980, to an estimated 8,874,600 in 1990, a growth rate of approximately 1.7 percent annually (USAF, 1990a). The current population of Los Angeles County is 9,230,599 (Minjares, 1994b).

3.12.1.1 White Point Navy Housing

The Region of Influence (ROI) for the White Point proposed housing site consists of census tracts 2972, 2973, 2975 and 2976 (Figure 3.12-1). This area is bounded by 18th and 22nd Streets on the north, Paseo Del Mar and Cabrillo Beach on the south, Pacific Avenue and the West Channel of the Los Angeles Harbor on the east, and Western Avenue on the west.

In 1990, the population in the White Point ROI was 20,560. The population in 1993 was 20,318, and the current population is 20,347 (Minjares, 1994a). This is an increase of 0.14 percent from 1993 to 1994. SCAG has predicted the population of the White Point ROI to reach 20,760 by the year 2000, and 23,584 by the year 2010 (Minjares, 1994a).

3.12.1.2 Montgomery Navy Housing

The ROI for the Montgomery site consists of census tracts 2951, 2963 and 6707.01 (Figure 3.12-2). This area is bounded by West Anaheim Street and North Palos Verdes Drive on the north, Summerland Avenue and Miraflores Avenue on the south, Gaffey Street to the east, and Rolling Hills Estates City Limits and Enrose Avenue on the west.

In 1990, the population in the Montgomery ROI was 18,535. SCAG has predicted the population of the Montgomery ROI to reach 19,954 by the year 2000 and 22,163 by the year 2010 (SCAG, 1995).

3.12.1.3 Fort MacArthur Upper Reservation

The ROI for the Fort MacArthur Upper Reservation housing site is the same as that for the White Point housing site. Existing population statistics are the same as identified above in Subchapter 3.12.1.1.

3.12.2 Housing

The Air Force conducted a family housing market analysis which projects a housing deficit of approximately 107 units by 1999 (USAF, 1994d). The Air Force has determined that construction of up to 96 housing units would alleviate the projected housing deficit at LAAFB.

Air Force personnel that do not reside in base housing currently rent, lease or own housing in the community. This housing is located not only in the White Point or Montgomery ROI, but throughout the Los Angeles area or surrounding counties.

Figure 3.12-1

Region of Influence for White Point Housing and Fort MacArthur Upper Reservation Sites

Figure 3.12-2

Region of Influence for Montgomery Housing Site

3.12.2.1 White Point Housing

According to SCAG, a total of 8,445 households existed in the White Point ROI in the year 1990, comprised of approximately 3,576 single-family units (42.3 percent) and 4,869 multi-family units (57.7 percent). SCAG predicts that approximately 8,783 households would exist by the year 2000 and 9,351 by the year 2010. In the year 2000, 39.8 percent of the houses would be single-family (3,493) and 60.2 percent would be multi-family (5,290). In 2010, single-family houses would comprise 38.2 percent (3,573) and multi-family houses would comprise 61.8 percent (5,778) (Minjares, 1994a). The average vacancy rate for the White Point ROI was approximately 5.3 percent in 1990 (Minjares, 1994b).

Housing prices in the White Point ROI average approximately $250,000 to $350,000. They are higher than the average prices for Los Angeles County ($226,400) and southern California as a whole ($211,608). The average housing prices by census tract are shown on Table 3.12-1.

Table 3.12-1

Average Housing Prices in the White Point Region of Influence

Census Tract	Price
2972	$248,100
2973	$318,800
2975	$351,300
2976	$271,800
Source: Minjares, 1994c	

3.12.2.2 Montgomery Housing

According to SCAG, a total of 6,637 households existed in the Montgomery ROI in the year 1990, comprised of approximately 2,982 single-family units (44.9 percent) and 3,655 multi-family units (55.1 percent). SCAG predicts that approximately 7,007 households would exist by the year 2000 and 7,647 by the year 2010. In the year 2000, 42.6 percent of the houses would be single-family (2,987) and 57.4 percent would be multi-family (4,020). In 2010, single-family units would comprise 40.1 percent (3,069) and multi-family units would comprise 59.9 percent (4,578) (SCAG, 1995). The average vacancy rate in the Montgomery ROI was approximately 2.87 percent in 1990 (SCAG, 1995).

Housing prices in the Montgomery ROI average approximately $326,700 to $401,200. They are higher than the average prices for Los Angeles County ($226,400) and southern California as a whole ($211,608). The average housing prices by census tract are shown on Table 3.12-2.

Table 3.12-2

Average Housing Prices in the Montgomery Region of Influence

Census Tract	Price
2951	$389,500
2963	$326,700
6707.01	$401,200
Source: SCAG, 1995	

3.12.2.3 Fort MacArthur Upper Reservation

Existing housing statistics for the Fort MacArthur Upper Reservation area are the same as those identified for the White Point Navy housing (Subchapter 3.12.2.1).

3.12.3 Employment

3.12.3.1 White Point Housing

In 1990, employment in the White Point ROI was 3,183. Area employment is segregated by type, and is listed on Table 3.12-3. Employment is expected to increase slightly in the future. SCAG predicts that employment will rise to 3,290 in 2000 and 3,571 in 2010.

Table 3.12-3

Employment in the White Point Region of Influence

Type	Number
Manufacturing	67
Agricultural	19
Mining	0
Construction	299
Transportation and utilities	340
Wholesale trade	117
Retail trade	627
Financial, insurance and real estate	118
Services	932
Government	664
Source: Minjares, 1994a	

3.12.3.2 Montgomery Navy Housing

In 1990, employment in the Montgomery ROI was 5,655. Area employment is segregated by type, and is listed on Table 3.12-4. Employment is expected to increase slightly in the future. SCAG predicts that employment will rise to 5,853 in 2000 and 6,108 in 2010.

Table 3.12-4

Employment in the Montgomery Region of Influence

Type	Number
Agricultural	66
Mining	0
Construction	265
Manufacturing	920
Utilities	412
Wholesale trade	484
Retail trade	1495
Financial, insurance and real estate	337
Services	1021
Government	655
Source: SCAG, 1995	

3.12.3.3 Fort MacArthur Upper Reservation

Existing employment statistics for the Fort MacArthur Upper Reservation area are the same as those identified for the White Point area (Subchapter 3.12.3.1).

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Chapter 4 presents an evaluation of the environmental impacts that may result from implementing the Proposed Action or an alternative. This chapter focuses on the impacts that are considered potentially significant. The general approach followed throughout this chapter is to describe briefly the range of impacts that would occur and then provide a detailed discussion of those impacts that are considered significant.

Under each resource area, the specific criteria for determining the significance of impacts and assumptions for the analyses are presented. Significance criteria for most potential impacts have been obtained either from: standard criteria; federal, state, or local agency guidelines and requirements; and/or legislative criteria. This is followed by an evaluation of environmental impacts for each of the proposed housing sites. Cumulative impacts are defined as "...impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions..." (USAF, 1982; 40 CFR 1508.7). The adverse impacts which are considered unavoidable are also described, and a determination is made as to whether these impacts are considered significant.

Potential management practices that would prevent or minimize potential impacts where possible are also identified in this chapter. The potential practices presented in Chapter 4 of this EA are based on the best available environmental and engineering practices at this time. Should other equivalent measures become available, the Air Force may implement the alternative measure(s) to achieve the same or better level of impact prevention or reduction.

4.1 LOCAL COMMUNITY

4.1.1 Significance Criteria

Impacts of the Proposed Action or an alternative on a local community would be considered significant if the Proposed Action or an alternative resulted in:

(1) An inconsistency/conflict with the environmental goals, objectives, or guidelines of an applicable general plan that governs the subject area;

(2) Development or conversion of an applicable general plan-designated open space to a more intensive land use;

(3) Rapid urban growth or disruption of the physical arrangement of an established community;

(4) Conflict with existing recreational, educational, religious or scientific uses of the area;

(5) Obstruction of a scenic vista or view open to the public;

(6) Creation of an aesthetically offensive site open to public view; and

(7) Degradation of the project site character caused by changes to line, color, and/or texture (OPR, 1992).

4.1.2 White Point Navy Housing

4.1.2.1 Land Use and Community Setting

Housing Site

The White Point site is located on federally-owned land and is not required to comply with the goals, objectives, or guidelines of the City of Los Angeles General Plan/San Pedro Community Plan or the City of Los Angeles Zoning Ordinance.

The White Point site is currently developed with 78 single- and multi-family dwelling units and an 8 acre vacant area south of the housing. The housing units would be demolished and replaced with up to 96 new, single-family, detached housing units on the existing housing site and vacant area. The existing 8-acre open space would be converted to residential use. The existing housing area is currently developed for residential purposes and the 8-acres was not planned for future open space. As such, it does not conflict with the objectives of any applicable plans, there would be no disruption in the physical arrangement of the established community, rapid urban growth, nor a conflict with existing recreational, educational, religious or scientific uses of the area. Therefore, no on-site land use impacts are anticipated to occur.

The White Point housing site is located within the Coastal Zone. The proposed development would not restrict coastal access by the public and would, therefore, not be in conflict with the goals, policies, or guidelines of the California Coastal Act of 1972, as amended. The Air Force has submitted a Negative Determination to the California Coastal Commission for construction of MFH on this site. The Negative Determination was prepared in accordance with Section 930.35d of the National Oceanic and Atmospheric Administration, Federal Consistency Regulations (15 CFR 930). The Air Force has determined that the proposed housing project will have no adverse impact on the Coastal Zone and meets the provisions of Chapter 3 of the Public Resources Code, Division 20, California Coastal Act. A concurrence with this determination is pending. No action will be taken to implement the Proposed Action until this has been received.

Surrounding Area

The surrounding land uses in the vicinity of the White Point site are primarily zoned, designated for, and developed with low-density, single-family housing units and other housing (Pacific Heights Air Force housing). Therefore, redevelopment of the site with single-family housing would be consistent with the environmental goals, objectives and guidelines of the San Pedro Community Plan. Additionally, redevelopment of the site with the new housing units would represent a continuation of existing uses and would be consistent with the character of the surrounding community. There would be no rapid urban growth, disruption of the physical arrangement of the established community, nor displacement, removal, or disturbance to the established recreational, educational, religious, or scientific uses of the surrounding area. Therefore, no significant adverse impacts on land uses located adjacent to, or in the vicinity of, the White Point site are anticipated.

4.1.2.2 Aesthetics

Housing Site

Under this alternative, the 78 single- and multi-family military housing units and 8-acres of vacant land would be replaced with up to 96 new, single-family housing units. These new housing units would be one- and two-story detached units with landscaped surroundings. The architectural style of these homes would be Victorian and Craftsman style.

Construction of the new housing at the White Point site has the potential to positively impact the aesthetic value of the site. The existing buildings are one- and two-story single-family homes and attached townhomes with carports. The construction of new units would result in the demolition of these existing buildings, and the development of newer, more architecturally interesting buildings that are comparable to surrounding land uses. Landscaped buffer areas would be developed between the site and adjacent areas. The new residential development would create a cleaner and more aesthetically pleasing neighborhood-type community which would improve the visual integrity of the site.

The housing would be developed within the topographic and physical constraints of the site. The one- and two-story structures would be approximately the same height as the existing units. The development of new housing would retain the existing view of the coastline to the south however, this view is not seen by the public. Therefore, the new housing units would not obstruct any scenic vista or views open to the public. No significant adverse impacts to the aesthetic quality of the site are anticipated to occur.

Surrounding Areas

- **Construction**

  During the construction period, the site would be visible from residences at the Pacific Heights Air Force housing area and a limited number of residences along 25th Street. Any grading, excavation, or fill activities would be visible. In addition, construction equipment, supplies, and dust created in the process would affect visual aesthetics. The White Point site, however, is not considered a visual resource. Therefore, the construction period would represent a temporary adverse impact which would be insignificant over the lifetime of the project.

- **Operation**

  New housing units would replace existing older structures and vacant land in an area characterized by residential development. The new housing units would be visible to the residents of the Pacific Heights Air Force housing area and a limited number of residences along 25th Street and Weymouth Avenue. The new housing units would be designed in a similar scale and density to surrounding land uses. The architectural style of the new structures would be compatible with surrounding uses. The new units would have the potential to provide a positive visual impact on surrounding uses. No existing views of the site would be impaired, and the new housing would not result in the creation of an aesthetically offensive site open to public view. The existing coastal view from the new housing to the south would be retained however, this view is not seen by the public. There are no public views of, or from, the site, and therefore, operation of the new housing at this site would not result in the obstruction of any scenic vistas or views available to the public. No long-term significant adverse impacts on the visual quality of the White Point site or surrounding vicinity are anticipated.

4.1.3 Montgomery Navy Housing

4.1.3.1 Land Use and Community Setting

Housing Site

The Montgomery site is located on federally-owned land is not required to comply with the goals, objectives, or guidelines of the City of Los Angeles General Plan/ Wilmington-Harbor City Plan or the City of Los Angeles Zoning Ordinance.

The site is currently developed with 245 single-family dwelling units. Approximately 25 acres (of the approximate 68 acres total) comprising 91 (of the 245) units would be demolished and replaced with up to 96 new, single, detached housing units. Therefore, existing open space would not be converted, and the development of a similar number of units per acre would represent the same land use as currently exists on the site. Additionally, since the site is currently developed for residential purposes, there would be no disruption in the physical arrangement of the established community, rapid urban growth, nor a conflict with existing recreational, educational, religious or scientific uses of the area. Redevelopment of the site with new housing units would not represent an inconsistency or conflict with established land use policies. Therefore, no on-site land use impacts are anticipated to occur.

Surrounding Area

The surrounding land uses in the vicinity of the Montgomery site are primarily zoned, designated for, and developed with low-density, single-family housing units and former Taper Avenue housing. Therefore, redevelopment of the site with single-family housing would be consistent with the environmental goals, objectives and guidelines of the Wilmington-Harbor City Plan and the Rancho Palos Verdes General Plan. Additionally, redevelopment of the site with new housing units would represent a continuation of existing uses and would be consistent with the character of the surrounding community. There would be no rapid urban growth, disruption of the physical arrangement of the established community, nor displacement, removal, or disturbance to the established recreational, educational, religious, or scientific uses of the surrounding area. Therefore, no significant adverse impacts on land uses located adjacent to, or in the vicinity of, the Montgomery site are anticipated.

4.1.3.2 Aesthetics

Housing Site

Under this alternative, existing older single-family military housing units would be replaced with up to 96 new, single-family housing. New units would be one- and two-story, detached and surrounded by landscaping. The architectural style of these homes would be Victorian and Craftsman.

Construction of the new housing at the Montgomery site has the potential to positively impact the aesthetic value of the site. The existing buildings are unadorned, simple, military-style dwelling units. The construction of new units would result in the demolition of these existing buildings, and the development of newer, more architecturally interesting buildings that are comparable to surrounding land uses. Landscaped buffer areas would be developed between the site and adjacent areas. The new residential development would create a cleaner and more aesthetically pleasing neighborhood-type community which would improve the visual integrity of the site.

The housing would be developed within the topographic and physical constraints of the site. The one- and two-story structures would be the same height or taller than the existing units. The new housing units would not obstruct existing views. No significant adverse impacts to the aesthetic quality of the site are anticipated to occur.

Surrounding Areas

- **Construction**

  During the construction period, the site would be visible from the Taper Avenue Navy housing area (currently vacant) and residences along portions of Western Avenue. Any grading, excavation, or fill activities would be visible. In addition, construction equipment, supplies, and dust created in the process would affect visual aesthetics. The Montgomery site, however, is not considered a visual resource. Therefore, the construction period would represent a temporary adverse impact which would be insignificant over the lifetime of the project.

- **Operation**

New housing units would replace existing older structures in an area characterized by residential development. The new housing units would be visible to the potential residents of the Taper Avenue Navy housing area and residences along portions of Western Avenue. The new housing units would be designed in a similar scale and density to surrounding land uses. The architectural style of the new structures would be compatible with surrounding uses. The new units would have the potential to have a positive visual impact on surrounding uses. No existing views of the site would be impaired, and the new housing would not result in the creation of an aesthetically-offensive site open to public view. There are no scenic vistas or views of or from the site, and therefore, operation of the new housing at this site would not result in the obstruction of any scenic vistas or views open to the public. No long-term significant adverse impacts on the visual quality of the Montgomery site or surrounding vicinity are anticipated.

4.1.4 Fort MacArthur Upper Reservation

4.1.4.1 Land Use and Community Setting

<u>Housing Site</u>

The San Pedro Community Plan designation of the site is consistent with that of the San Pedro Coastal Specific Plan. Therefore, potential impacts would be similar and are discussed together.

Construction of the proposed housing at Fort MacArthur Upper Reservation would not be consistent with the San Pedro Community Plan and the San Pedro Coastal Specific Plan, which designate the housing site for open space and public/quasi public uses. Residential uses are not typically permitted within the Open Space and Public/Quasi-Public designations. The zoning for the site (A1-1) permits single-family residential development at a minimum density of one dwelling per 2.5 acres. The development of 96 units on approximately 19 acres represents a density of approximately five units per acre.

Although the proposed housing site on the Fort MacArthur Upper Reservation is owned by a local agency (LAUSD), the proponent of the project is a federal agency (the Air Force). Therefore, the City of Los Angeles considers the project to be a federal project and exempt from local review (Eberhard, 1996). The City of Los Angeles Planning Department treats any federal project, regardless of land ownership, as a development "in the national interest exempt from local review and control." For this reason, the Proposed Action will not require a zone change to R-1 (eight dwelling units per acre) or a general plan amendment to Low Density Residential to permit housing on the site. The proposed land use would be compatible with the educational and recreational uses of the Fort MacArthur Upper Reservation envisioned under the Angels Gate Park Master Plan (Reilly, 1994), the LAUSD Marine Studies Master Plan, and the Marine Bird Rehabilitation Center.

The Fort MacArthur Upper Reservation housing site is located within the Coastal Zone. The proposed development is not anticipated to restrict coastal access by the public and would therefore not be in conflict with the goals, policies, or guidelines of the California Coastal Act of 1972, as amended. However, to ensure compliance with federal and state regulations, a Coastal Consistency Determination (CCD) would be required.

The proposed housing development would represent a conversion of the community plan-designated open space to a more intensive land use. However, the Upper Reservation is also designated for public or quasi-public uses. Therefore, the entire Upper Reservation was not anticipated to be used for open space. The housing site itself comprises only a small portion of the Fort MacArthur Upper Reservation, and does not represent a significant amount of open space. It is located in an area already developed with buildings, and is not characterized by continuous open space. Also, approximately seven acres, or more than one-fourth of the proposed housing development, would be left as open space.

Development of up to 96 housing would not induce rapid urban growth. The housing site is located in an area already characterized by predominantly residential development. The development of the proposed housing units would represent a continuation or consistency of development in the community, and would not disrupt the physical arrangement of the established community.

Development of the housing area would result in the removal of facilities currently used by LAUSD for educational purposes and an athletic field used for recreational purposes. Existing LAUSD functions within the housing site would be relocated to other locations on the Upper Reservation (Hall, P., 1994). The existing athletic field is planned to be replaced by the LADRP with two new athletic fields on other portions of the Upper Reservation. Additionally, there are over 400 acres of parks and recreational facilities in the community of San Pedro which serve a population of approximately 20,000. The LADRP standard is four acres per 1,000 residents (also see discussion in Chapters 3.3.6 and 4.3.2.6, Recreation). While removal of the athletic field represents the loss of a recreational resource, there are more than adequate parks and recreational facilities available to serve the population according to LADRP criteria (see Subchapter 4.3.2.6, Recreation). Therefore, with the anticipated relocation of the displaced educational facilities and athletic field, a conflict with established recreational, educational, religious or scientific uses of the area is not expected.

Surrounding Areas

The surrounding land uses within the vicinity of the housing site are zoned or designated for primarily low- and medium-density residential purposes. The proposed new housing does not conflict with the goals and policies of the City's Scenic Highways and Bicycle Plans. Therefore, it would be consistent with the environmental goals, objectives, or guidelines of the general plan for adjacent and surrounding land uses.

Angels Gate Park and Point Fermin Beach Park are the only two areas in the immediate vicinity of the housing site which are designated for open space purposes. The housing site is located to the north of these two community plan-designated open spaces. The proposed new housing would not result in the development or conversion of Angels Gate Park and Point Fermin Park to a more intensive land use.

As previously discussed, development of the proposed housing units would be consistent with the character of the surrounding community, and would not induce rapid urban growth or disrupt the physical arrangement of the established community. With the exception of the LAUSD facilities which would be relocated to other existing facilities on and off the reservation, the proposed new housing would not displace, remove, or disturb established recreational, educational, religious or scientific uses of the surrounding area. It is not anticipated to have a significant adverse impact on land uses located adjacent to, or in the vicinity of, the housing site.

4.1.4.2 Aesthetics

Housing Site

Up to 96 unattached, one- and two-story housing units with landscaped surroundings would be constructed over two phases at the housing site on the Fort MacArthur Upper Reservation. The architectural theme of these homes would be Victorian and Craftsman style.

Construction of housing units has the potential to positively impact the aesthetic value of the site, as well as the surrounding area. The housing site is characterized by older, unadorned, and abandoned military buildings and weedy open spaces. Construction of new dwelling units would result in the removal of these existing buildings, and the development of newer, more architecturally-interesting buildings that are comparable to surrounding land uses. The new housing area is intended to be pedestrian oriented. The preliminary community plan includes paths winding through the site designed to encourage bicycling and walking and to discourage use of automobiles. Landscaping would also be employed at the site, and approximately one-fourth of the site would be left as open space. A landscape plan prepared by a licensed landscape architect would be prepared and submitted to the City of Los Angeles Planning Department for approval. The plan would include requirements for the provision of landscaped buffer areas between the site and adjacent areas. The new residential development would create a cleaner, more cohesive, and more aesthetically-pleasing neighborhood-type community.

The Battery Barlow-Saxton, located within the housing site, is an abandoned and run-down below-grade structure. The concrete walls are defaced with graffiti, and the ground is covered with refuse and debris from broken windows. With the development of family housing, there would be an increase in the number of people and level of activity in the area. This would serve as a deterrent for vandalism and littering at the battery and elsewhere on the site. Additionally, the battery would be located within the boundaries of the proposed housing area, and would no longer be open to public access. A family-oriented environment would replace the secluded, abandoned environment. This would improve the visual integrity and aesthetics of the area.

The proposed new housing units would be developed within the topographic and physical constraints of the site. There would be no significant impacts to visual resources as they relate to land form. Construction of the proposed housing would not cause degradation of the hilly, sloping character and coastal bluffs of the housing site.

Construction of the proposed housing would result in the removal of some open space on the housing site. However, the existing open space is predominantly paved or characterized by non-native vegetation (see Chapter 3.10, Biological Resources), and is not currently a scenic or visual resource. The new housing would include landscaping, which would be routinely maintained. Some open space areas which are considered unbuildable (approximately seven acres) would remain. For these reasons, no significant adverse impacts to aesthetics are anticipated to occur.

<u>Surrounding Areas</u>

- **Construction**

  During the construction period, the housing site would be visible from residences on Alma Street toward the north end of the site and from the backyards of homes bordering the site on the north. Any grading, excavation or fill activities would be visible. Construction equipment, supplies, and dust created in the process would affect visual aesthetics. The housing site, however, is not considered a visual resource. The visibility of construction activities would not result in the obstruction of a scenic vista or view open to the public, nor would it create an aesthetically offensive site open to public view. Therefore, the construction period would represent a temporary adverse impact which would be insignificant over the lifetime of the project.

- **Operation**

  New housing units would be constructed in an area surrounded by residential development. The housing units would be constructed on three tiered plateaus (from north to south). The proposed housing units on the top tier would be visible to residents on the northwest side of the housing site along Alma Street. Although the proposed structures would not obstruct views to any scenic resources, approximately 40 of the new units would be visible to surrounding residents. New structures would replace the present open space area, which is predominantly unlandscaped with paved areas and existing military structures. The proposed new housing units are being designed in a similar scale and density to surrounding land uses. Buffering with items such as berms, trees and other vegetation would be incorporated as part of the project site design and landscaping. Residents north of the site would only have views of some of the housing units from their backyards. Their property is fenced off by a chain link fence, against which shrubs and other vegetation are already in place. The proposed new housing would not drastically impair any existing scenic views of the site, and is not anticipated to result in the creation of an aesthetically-offensive site open to public view.

The regional land form of the area would not be altered, nor would scenic vistas or points of interest in the vicinity of the housing site be affected. The view from visual overlook areas, the Korean Friendship Bell area and Angels Gate Park, Paseo Del Mar and Point Fermin would not be affected. Therefore, the a scenic vista or view open to the public would not be obstructed.

4.1.5 No Action Alternative

Under the No Action Alternative, the new housing would not be constructed at the White Point, Montgomery or Fort MacArthur Upper Reservation sites. There would be no alteration of the sites, and existing conditions would remain. Beneficial impacts, including improvement to the visual quality of the land uses on the sites and views of the sites from adjacent properties, and removal of old and abandoned structures, would not occur. New development may also occur in the future on the alternative sites. Adverse visual and aesthetic impacts could occur if new development is considered aesthetically offensive by the surrounding community.

4.1.6 Cumulative Impacts

Potential cumulative impacts are only associated with the Fort MacArthur Upper Reservation. There would not be any cumulative impacts associated with land use or aesthetics at the other two potential housing sites. The proposed new housing would result in an intensification of land use on the Fort MacArthur Upper Reservation. While development of the housing units would only occur on the northern part of the reservation, there are also three other projects proposed for the Fort MacArthur Upper Reservation under existing master plans (the Marine Studies Center, the Marine Bird Rehabilitation Facility, and the new LADRP recreational resources). The new construction would affect only a small portion of the Fort MacArthur Upper Reservation, and does not represent a significant amount of open space. The Upper Reservation is designated for public or quasi-public uses, and was not anticipated to be permanently used for open space. Therefore, no cumulative land use or aesthetic impacts are anticipated.

4.1.7 Unavoidable Adverse Impacts

Unavoidable adverse impacts to land use or aesthetics would occur during construction activities at each of the potential housing sites. These impacts are not considered significant.

White Point Navy Housing

The proposed housing would be visible to residents of the Pacific Heights Air Force housing area to the west of the site and to a limited number of residents along 25th Street and Weymouth Avenue. While construction of housing on the site would be aesthetically-compatible with the surrounding community, temporary adverse visual impacts would occur during the construction period. This construction-related impact is unavoidable but would not be considered significant.

Montgomery Navy Housing

The proposed housing would be visible to potential residents of the Taper housing area to the east of the site. While construction of housing on the site would be aesthetically-compatible with the surrounding community, temporary adverse visual impacts would occur during the construction period. This construction-related impact is unavoidable but would not be considered significant.

Fort MacArthur Upper Reservation

The proposed housing would be visible to adjacent residents on the west and north sides of the housing site. While housing development would be aesthetically-compatible with the surrounding community, temporary adverse visual impacts would occur during the construction period. This construction-related impact is unavoidable but would not be considered significant.

4.1.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.2 TRANSPORTATION

This chapter describes the effects of the Proposed Action and alternatives on public transportation and roadway facilities resulting from project-related automobiles.

The increase in military personnel that would result from new housing would not result in significant impacts to public transportation at White Point, Montgomery or the Fort MacArthur Upper Reservation sites. The increase in ridership on affected MTA lines would not be expected to result in a burden on these resources.

With regard to roadways affected by traffic derived from privately-owned vehicles, this chapter summarizes the findings of three transportation technical reports prepared for this analysis:

(1) Site Traffic Impact Analysis of the White Point Navy Housing Site (June 1995).

(2) Site Traffic Impact Analysis of the Fort MacArthur Upper Reservation Military Family Housing Project (February 1995); and

(3) Site Traffic Impact Analysis of the Taper Avenue Excess Department of Defense Housing Site and the Montgomery Navy Housing Site (March 1995).

4.2.1 Significance Criteria

Criteria developed by the City of Los Angeles Department of Transportation (LADOT) were utilized to assess the relative impact of project-generated traffic. These criteria, which apply to both intersections and local residential streets, are presented in Table 4.2-1. If a significant project-related impact is projected, mitigation which would reduce the impact to a level of insignificance is required by LADOT.

4.2.2 White Point Navy Housing

4.2.2.1 1997 Background Traffic Conditions

<u>Traffic Volumes</u>

In order to evaluate relative traffic impacts, it is first necessary to establish the 1997 background condition (i.e., the "base" condition) to which project-related impacts can be compared. The 1997 background traffic condition refers to the projected traffic volumes, excluding project-generated traffic. Based upon information provided by LADOT, 1997 non-project, or background, traffic volumes in the study area will include a continuation of existing traffic flow plus an increase in traffic resulting from ambient growth in the San Pedro area. According to LADOT, with the exception of the proposed housing development, there are no projects with major traffic-generating significance (related projects) envisioned for development by 1997 which would require inclusion in this analysis.

Table 4.2-1

Significance Criteria for Transportation Impacts

INTERSECTIONS		
Level-of-Service[(a)]	**Final V/C[(b)]**	**Project-Related Increase in V/C[(c)]**
C	> 0.700 - 0.800	$\geq$ 0.040
D	> 0.800 - 0.900	$\geq$ 0.020
E, F	> 0.900	$\geq$ 0.010

LOCAL RESIDENTIAL STREETS	
Projected ADT with Project (Final ADT)	**Project-Related Increase in Final ADT**
1,000 or more	12 percent or more of final ADT
2,000 or more	10 percent or more of final ADT
3,000 or more	8 percent or more of final ADT

Source: LADOT, 1993b
ADT Average daily traffic
V/C Volume-to-capacity ratio
(a) Refer to Table 3.2-1 for a discussion of level-of-service.
(b) For purposes of this calculation, "Final V/C" shall mean the future V/C at an intersection considering impacts with project, related project and ambient growth, but without proposed traffic mitigation.
(c) For purposes of this calculation, "Project-Related Increase in V/C" shall mean the change in V/C between the final V/C ratio and the future V/C ratio with ambient and related project growth but without project and proposed traffic mitigation. This value is presented as a ratio (Volume/Level-of-Service E Capacity).

In order to reflect ambient traffic growth in the vicinity of the housing site, a vehicular growth rate of 1.0 percent per year was applied to all existing intersection volumes. This ambient growth rate, which was stipulated by LADOT, is based upon historical trends in traffic growth for the study area. Based upon 1997 background traffic conditions, it is concluded that ambient traffic growth and cumulative non-project traffic growth within this study area are equivalent.

Utilizing the existing weekday morning peak hour volumes and the existing weekday evening peak hour volumes (see Figures D-11 and D-12), forecasts of 1997 background traffic volumes at the 12 study intersections were made. Specifically, the 1995 volumes were expanded using an annual growth factor of 1.0 percent. The resulting 1997 background traffic volumes are illustrated on Figures D-17 and D-18 in Appendix D for the weekday morning and evening peak hours, respectively.

Levels-of-Service

The analysis of 1997 LOS without the project was based upon the 1997 background traffic volumes (see Figures D-17 and D-18). LOS analyses for the 1997 background traffic condition were conducted at the 12 study intersections as was completed for the analysis of the existing traffic condition. The results of these analyses for background V/C and LOS are summarized in Table 4.2-2.

Table 4.2-2

White Point 1997 Background-Plus-Project Weekday Levels-of-Service

Intersection	Peak Hour Period	Background[a]		Background-Plus-Project[d]		V/C[b] Impact Due To Project	Significant[e]
		V/C[b]	LOS[c]	V/C[b]	LOS[c]		
Gaffey Street at Summerland Avenue	Morning Evening	0.487 0.737	A C	0.487 0.737	A C	- -	No No
Gaffey Street at I-110/SR-47 ramps	Morning Evening	0.389 0.658	A B	0.392 0.669	A B	+0.003 +0.011	No No
Gaffey Street at 1st Street	Morning Evening	1.091 0.918	F E	1.100 0.924	F E	+0.009 +0.006	No No
Gaffey Street at 7th Street	Morning Evening	0.861 0.797	D C	0.874 0.813	D D	+0.013 +0.016	No No
Gaffey Street at 9th Street	Morning Evening	0.821 0.813	D D	0.834 0.831	D D	+0.013 +0.018	No No
Gaffey Street at 22nd Street	Morning Evening	0.450 0.514	A A	0.467 0.635	A B	+0.017 +0.121	No No
Gaffey Street at 25th Street	Morning Evening	0.486 0.537	A A	0.532 0.591	A A	+0.046 +0.054	No No
Alma Street at 22nd Street[f]	Morning Evening	0.053 0.099	A A	0.054 0.101	A A	+0.001 +0.002	No No
Alma Street at 25th Street	Morning Evening	0.336 0.472	A A	0.367 0.510	A A	+0.031 +0.038	No No
Pacific Avenue at 22nd Street	Morning Evening	0.409 0.558	A A	0.410 0.559	A A	+0.001 +0.001	No No
Western Avenue at 25th Street	Morning Evening	0.794 0.705	C C	0.796 0.708	C C	+0.002 +0.003	No No
Whites Point Drive project access at 25th Street[f]	Morning Evening	0.257 0.334	A A	0.291 0.376	A A	+0.034 +0.042	No No

a Based upon volumes on Figures D-17 and D-18, and existing intersection lane configurations
b Volume-to-capacity ratio
c Level-of-service (Refer to Table 3.2-1 for a discussion of level-of-service)
d Based upon volumes on Figures D-19 and D-20, and existing intersection lane configurations
e Refer to Table 4.2-1 for a discussion of significant transportation impact criteria
f Although stop sign controlled, analyzed for purposes of comparison as if traffic signal controlled

As shown in Table 4.2-2, 11 of the 12 intersections will operate at LOS D or better during both the weekday morning and evening peak hours in 1997. At the Gaffey Street at 1st Street intersection, however, LOS F is projected for the weekday morning peak hour and LOS E is projected for the weekday evening peak hour.

4.2.2.2 Project Trip Generation

Estimates of vehicular trip generation to and from the proposed housing site were based upon ITE (1991). Trip generation estimates were made for the weekday morning peak hour, the weekday evening peak hour, and on a 24-hour basis.

The project would generate approximately 70 trips during the weekday morning peak hour (18 inbound and 52 outbound), approximately 96 trips during the weekday evening peak hour (62 inbound and 34 outbound), and approximately 910 trips on a 24-hour basis (455 inbound and 455 outbound).

The project volumes cited above are based upon trip generation studies of typical single-family, detached residences. Considering that approximately 70 percent of the project's work-related trips would be destined for the LAAFB in El Segundo, and that ridesharing is required at LAAFB, these volumes represent a worst-case analysis in terms of project-related traffic impacts on the surrounding community. The current LAAFB average of 1.67 occupants per vehicle is greater than the County of Los Angeles average of approximately 1.2 (Caltrans, 1993). It should be noted that in conducting this site traffic impact analysis, no reduction in trips was made at any of the 12 study intersections to reflect the elimination of Navy-generated trips associated with the to-be-vacated residences comprising the project. As a result, the use of the volumes cited in Table 4.2-2 represent a worst-case analysis in terms of project-related impacts.

4.2.2.3 1997 Background with Project - Levels-of-Service

Site access would not be modified from present conditions for the Proposed Action at the White Point site. Primary project access would be provided to/from 25th Street via Whites Point Drive. This access would be a full-movement access (Figure D-24). One inbound lane and one outbound lane would be provided. Outbound traffic flow would operate under sign control upon intersecting 25th Street. Based upon traffic-control criteria presented in Caltrans (1992), the Whites Point Drive project access at 25th Street intersection would not operate under traffic-signal control. Traffic entering the intersection from the north on a commercial driveway and the south on Whites Point Drive project access would operate under stop sign control, with no control imposed upon 25th Street traffic.

Trips expected to be generated were distributed and assigned to the 1997 background traffic volumes (see Figures D-19 and D-20). LOS analyses for 1997 assuming project completion were conducted at the 12 study intersections based upon the traffic volumes. The results of these analyses are summarized in Table 4.2-2.

As shown in Table 4.2-2, 11 of the 12 intersections would operate at LOS D or better during both the weekday morning and evening peak hours in 1997, assuming full project development. At the Gaffey Street at 1st Street intersection, however, LOS F is projected for the weekday morning peak hour and LOS E is projected for the weekday evening peak hour.

The following specific project-related impacts would occur:

Intersections

(1) The only changes in LOS designation would occur during the weekday evening peak hour at the intersections of Gaffey Street at 7th Street and Gaffey Street at 22nd Street. At the intersection of Gaffey Street at 7th Street, LOS C

without the project would become LOS D with the project. At the intersection of Gaffey Street at 22nd Street, LOS A without the project would become LOS B with the project. Neither is considered to be a significant impact by LADOT; and

(2) At the intersection of Gaffey Street at 1st Street, the V/C ratio of 0.918 without the project would become 0.924 with the project, an increase of 0.006. This increase is not considered significant because it is less than 0.010 under LOS E or F conditions (see Table 4.2-1).

Local Residential Streets

Alma Street north of 25th Street is the only local residential street exhibiting the potential of being significantly impacted by project traffic per the LADOT criteria. The project would add approximately 45 trips per day on Alma Street north of 25th Street. Based upon the 1997 background weekday evening peak hour volumes (see Figure D-18) and the assumption that the weekday evening peak hour volumes constitute approximately 9 percent of the ADT, Alma Street's background ADT volumes are estimated to be approximately 3,000 trips north of 25th Street and approximately 1,700 trips both north and south of 22nd Street. Therefore, because the addition of 45 project-generated trips do not exceed LADOT's percentage-increase thresholds, no significant impacts by project trips to any local residential streets would occur.

4.2.3 Montgomery Housing Alternative

4.2.3.1 1997 Background Traffic Conditions

Traffic Volumes

The 1997 background traffic volumes in the Montgomery housing site study area would include a continuation of existing traffic flow, an increase in traffic resulting from ambient growth in the San Pedro area, and traffic to be generated by any other projects with major traffic-generating significance envisioned for development by 1997 (related projects). However, there are no foreseeable related projects which would require inclusion in this analysis. This conclusion is in accordance with LADOT and the nearby cities of Lomita, Rancho Palos Verdes, Rolling Hills, and Rolling Hills Estates. Therefore, background traffic volumes occurring in 1997 (the year of project completion) will include a continuation of existing traffic flow (see Figures D-3 and D-4) plus ambient traffic growth occurring in the San Pedro area.

In order to reflect ambient traffic growth in the vicinity of the Montgomery site, a vehicular growth rate of 1.0 percent per year was applied to all existing intersection volumes, as stipulated by LADOT (see Subchapter 4.2.2.1, Traffic Volumes). Based upon 1997 background traffic conditions, it is concluded that ambient traffic growth and cumulative non-project traffic growth within this study area are equivalent.

Utilizing the existing weekday morning peak hour volumes and the existing weekday evening peak hour volumes (see Figures D-3 and D-4 in Appendix D), forecasts of 1997 background traffic volumes at the eight study intersections were made. Specifically, the 1995 volumes were expanded using an annual growth factor of 1.0 percent. The resulting 1997 background traffic volumes are illustrated on Figures D-13 and D-14 in Appendix D) for the weekday morning and evening peak hours, respectively.

Levels-of-Service

The analysis of 1997 LOS without the project was based upon 1997 background traffic volumes (see Figures D-13 and D-14 in Appendix D). LOS analyses for the 1997 background traffic condition were conducted at the eight study intersections as was completed for the analysis of the existing traffic condition. The results of these analyses are summarized in Table 4.2-3.

Table 4.2-3

Montgomery Navy Housing Alternative 1997 Background-Plus-Project Weekday Levels-of-Service

Intersection	Peak Hour Period	Background[a]		Background-Plus-Project[d]		V/C[b] Impact Due To Project	Significant[e]
		V/C[b]	LOS[c]	V/C[b]	LOS[c]		
Figueroa Street at I-110 North on-ramp[g]	Morning Evening	0.871 0.644	D B	0.877 0.647	D B	+0.006 +0.003	No No
Figueroa Street at Anaheim Street	Morning Evening	1.065 0.892	F D	1.071 0.895	F D	+0.006 +0.003	No No
Figueroa Place at I-110 South off-ramp[f]	Morning Evening	0.393 0.591	A A	0.395 0.595	A A	+0.002 +0.004	No No
Figueroa Place at Anaheim Street	Morning Evening	1.145 1.375	F F	1.149 1.383	F F	+0.004 +0.008	No No
Anaheim Street at Vermont Avenue at Gaffey Street at Palos Verdes Drive North	Morning Evening	0.826 0.905	D E	0.828 0.913	D E	+0.002 +0.008	No No
Western Avenue at Palos Verdes Drive North	Morning Evening	1.070 1.254	F F	1.075 1.261	F F	+0.005 +0.007	No No
Western Avenue at John Montgomery Drive north	Morning Evening	0.630 0.618	B B	0.655 0.631	B B	+0.025 +0.013	No No
Gaffey Street at Westmont Drive	Morning Evening	0.467 0.619	A B	0.481 0.631	A B	+0.014 +0.012	No No

[a] Based upon volumes on Figures D-13 and D-14, and existing intersection lane configurations
[b] Volume-to-capacity ratio
[c] Level-of-service (Refer to Table 3.2-1 for a discussion of level-of-service)
[d] Based upon volumes on Figures D-15 and D-16, and existing intersection lane configurations
[e] Refer to Table 4.2-1 for a discussion of significant transportation impact criteria
[f] Although stop sign controlled, analyzed for purposes of comparison as if traffic signal controlled

As shown in Table 4.2-3, four of the eight intersections will operate at LOS D or better during both the weekday morning and evening peak hours in 1997. At the intersections of Figueroa Street at Anaheim Street, Figueroa Place at Anaheim Street, Anaheim Street at Vermont Avenue at Gaffey Street at Palos Verdes Drive North, and Western Avenue at Palos Verdes Drive North, LOS E or F will be experienced during one or both of the two weekday peak hours.

4.2.3.2 Project Trip Generation

The methodology and findings of the project trip generation are the same as those described for the White Point housing site (see Subchapter 4.2.2.2).

4.2.3.3 1997 Background with Project - Levels-of-Service

The distribution of project-generated trips was based upon the nature of the proposed residential land use; and related employment and personal business sites, shopping and recreational areas, and the locations of other activities and opportunities. Because the weekday morning and evening peak hours constitute the period of analysis for this study, the home-to-work trip in the morning and work-to-home trip in the evening significantly influence the distribution of project traffic during these two time periods. The majority of the project-related work trips would be associated with the LAAFB in El Segundo (located approximately 12 miles north of the Taper Avenue site study area). Approximately 70 percent of the peak hour traffic would be work-related and would utilize I-405 via Western Avenue at Normandie Avenue, and I-110, with the remaining 30 percent distributed more locally.

Trips expected to be generated were distributed and assigned to the 1997 background traffic volumes (see Figures D-15 and D-16 in Appendix D). LOS analyses for 1997 assuming project completion were conducted at the eight study intersections based upon the traffic volumes. The results of these analyses are summarized in Table 4.2-3.

As shown in Table 4.2-3, four of the eight intersections would operate at LOS D or better during both the weekday morning and evening peak hours in 1997, assuming full project development. At the intersections of Figueroa Street at Anaheim Street, Figueroa Place at Anaheim Street, Anaheim Street at Vermont Avenue at Gaffey Street at Palos Verdes Drive North, and Western Avenue at Palos Verdes Drive North, LOS E or F will be experienced during one or both of the two weekday peak hours. No changes in LOS designation would occur at any study intersection as a result of project traffic.

<u>Local Residential Streets</u>

There are no local residential streets exhibiting the potential of being significantly impacted by project traffic per LADOT criteria. The segment of Taper Avenue south of the project's southerly boundary to Westmont Drive is designated as a residential collector roadway, and is not subject to LADOT criteria for local residential streets.

4.2.4 Fort MacArthur Upper Reservation

4.2.4.1 1997 Background Traffic Conditions

Traffic Volumes

Utilizing the existing weekday morning and evening peak hour volumes (see Figures D-1 and D-2 in Appendix D), forecasts of 1997 background traffic volumes at the 13 study intersections were made. Specifically, the 1995 volumes were expanded using an annual growth factor of 1.0 percent. The resulting 1997 background traffic volumes are illustrated on Figures D-7 and D-8 in Appendix D for the weekday morning and evening peak hours, respectively.

Levels-of-Service

The analysis of 1997 levels-of-service (LOS) without the project was based upon the 1997 background traffic volumes (see Figures D-7 and D-8 in Appendix D). LOS analyses for the 1997 background traffic condition were conducted at the 13 study intersections as was completed for the analysis of the existing traffic condition. The results of these analyses are summarized in Table 4.2-4.

As shown in Table 4.2-4, 12 of the 13 intersections will operate at LOS D or better during both the weekday morning and evening peak hours in 1997. At the intersection of Gaffey Street at 1st Street, however, LOS F is projected for the weekday morning peak hour and LOS E is projected for the weekday evening peak hour.

4.2.4.2 Project Trip Generation

The methodology and findings of the project trip generation are the same as those described for the White Point housing site (see Subchapter 4.2.2.2).

4.2.4.3 1997 Background with Project - Levels-of-Service

The distribution of project-generated trips was based upon: the nature of the proposed residential land use; related employment and personal business sites, shopping and recreational areas; and the locations of other activities and opportunities. Because the weekday morning and evening peak hours constitute the period of analysis for this study, the home-to-work trip in the morning and work-to-home trip in the evening significantly influence the distribution of project traffic during these two time periods. The majority of the project-related work trips would be associated with the LAAFB in El Segundo (located approximately 15 miles north of the Fort MacArthur Upper Reservation housing site). Approximately 70 percent of the peak hour traffic would be work-related and would utilize I-110 (via Gaffey Street), with the remaining 30 percent distributed more locally.

Access to the proposed housing site would be provided via Gaffey Street from Barlow-Saxton Road, and via Alma Street from Meade Drive. These locations were analyzed separately, to determine worst-case project impacts from either access. Although both accesses would be available, the Gaffey Street access would likely be more heavily used because it is planned that the Alma Street access would be used for

Table 4.2-4

Fort MacArthur Upper Reservation Alternative - 1997 Background-Plus-Project Weekday Levels-of-Service With Project Access Via Gaffey Street

Intersection	Peak Hour Period	Background[a] V/C[b]	Background[a] LOS[c]	Background-Plus-Project[d] V/C[b]	Background-Plus-Project[d] LOS[c]	V/C[b] Impact Due To Project	Significant[e]
Gaffey Street at Summerland Avenue	Morning Evening	0.487 0.737	A C	0.487 0.737	A C	- -	No No
Gaffey Street at I-110/SR-47 ramps	Morning Evening	0.389 0.658	A B	0.392 0.669	A B	+0.003 +0.011	No No
Gaffey Street at 1st Street	Morning Evening	1.091 0.918	F E	1.100 0.929/ 0.927[g]	F E/E[g]	+0.009 +0.011/ +0.009[g]	No Yes/ No
Gaffey Street at 7th Street	Morning Evening	0.861 0.797	D C	0.874 0.813	D D	+0.013 +0.016	No No
Gaffey Street at 9th Street	Morning Evening	0.821 0.813	D D	0.834 0.831	D D	+0.013 +0.018	No No
Gaffey Street at 22nd Street	Morning Evening	0.450 0.514	A A	0.467 0.635	A B	+0.017 +0.121	No No
Gaffey Street at 25th Street	Morning Evening	0.486 0.537	A A	0.511 0.539	A A	+0.025 +0.002	No No
Gaffey Street at 32nd Street/Project Access[h]	Morning Evening	0.172 0.205	A A	0.210 0.269	A A	+0.038 +0.064	No No
Gaffey Street at Leavenworth Drive[h]	Morning Evening	0.117 0.171	A A	0.127 0.177	A A	+0.010 +0.006	No No
Alma Street at 22nd Street[h]	Morning Evening	0.053 0.099	A A	0.054 0.101	A A	+0.001 +0.002	No No
Alma Street at 25th Street	Morning Evening	0.336 0.472	A A	0.333 0.476	A A	-0.003 +0.004	No No
Alma Street at Meade Drive[h]	Morning Evening	0.055 0.055	A A	0.039 0.051	A A	-0.016 -0.004	No No
Pacific Avenue at 22nd Street	Morning Evening	0.409 0.558	A A	0.410 0.559	A A	+0.001 +0.001	No No

a Based upon volumes on Figures D-7 and D-8, and existing intersection lane configurations
b Volume-to-capacity ratio
c Level-of-service (Refer to Table 3.2-1 for a discussion of level-of-service)
d Based upon volumes on Figures D-9 and D-10, and existing intersection lane configurations
e Refer to Table 4.2-1 for a discussion of significant transportation impact criteria
f Based upon volumes on Figures D-9 and D-10, and proposed mitigation/lane configurations on Figure D-21
g Reflects traffic without consideration of ridesharing/with ridesharing
h Although stop sign controlled, analyzed for purposes of comparison as if traffic signal controlled

emergencies only. The following analysis of each access was based on the assignment of 100 percent of the project-related trips to the access road evaluated.

Access via Gaffey Street

Implementation of lane configurations and traffic controls (i.e., stop signs at proposed driveways would be required) by the year of project completion would be required for use of Gaffey Street as the main access.

Access would be maintained to/from the east via Gaffey Street. This access would be provided as the west leg of the Gaffey Street at 32nd Street intersection, via Barlow-Saxton Road, an existing internal street within the Fort MacArthur Upper Reservation. Gaffey Street would be a full-movement access (see Figure D-21). One inbound lane and one outbound lane would be provided. Based upon the 1997 weekday morning and evening peak hour volumes, outbound traffic flow would operate under sign control upon intersecting Gaffey Street, per traffic-control criteria presented in Caltrans (1992). Traffic entering the intersection of Gaffey Street at 32nd Street from the east on 32nd Street, and from the west on Barlow-Saxton Road, would operate under sign control, with no control imposed upon Gaffey Street traffic.

A separate left-turn lane would be provided on Gaffey Street's northbound and southbound approaches to 32nd Street. Although not required to mitigate a significant LOS impact, this improvement would enhance safety of travel as well as increase traffic-carrying capacity. This improvement can be accommodated by restriping Gaffey Street in the vicinity of 32nd Street; no loss in on-street parking or roadway widening would result.

Trips expected to be generated with assumed project access only via Gaffey Street were distributed and assigned to the 1997 background traffic volumes (see Figures D-9 and D-10 in Appendix D). LOS analyses for 1997, assuming project completion with project access only via Gaffey Street, were conducted at the 13 study intersections based upon the traffic volumes. The results of these analyses are summarized in Table 4.2-4.

As shown in Table 4.2-4, 12 of the 13 intersections would operate at LOS D or better during both the weekday morning and evening peak hours in 1997, assuming full project development with project access only via Gaffey Street. At the intersection of Gaffey Street and 1st Street, however, LOS F is projected for the weekday morning peak hour, and LOS E is projected for the weekday evening peak hour.

The following specific project-related impacts would occur:

Intersections

(1) The only changes in LOS designation would occur during the weekday evening peak hour at the intersections of Gaffey Street at 7th Street and Gaffey Street at 22nd Street. At the intersection of Gaffey Street at 7th Street intersection, LOS C without the project would become LOS D with the project. At the intersection of Gaffey Street at 22nd Street, LOS A without the project would become LOS B with the project. Neither is considered to be a significant impact by LADOT.

(2) At the intersection of Gaffey Street at 1st Street, a significant impact would occur during the weekday evening peak hour when ridesharing is not considered. The volume-to-capacity ratio (V/C) of 0.918 without the project would become 0.929 with the project (no ridesharing), an increase of 0.011. This increase is considered significant because it is 0.010 or more under LOS E or F conditions (see Table 4.2-1). When ridesharing (a requirement of LAAFB personnel) is considered, the V/C ratio would become 0.927 with the project, an increase of 0.009, which would not be considered a significant impact.

Local Residential Streets

The project (assuming access only via Gaffey Street) would add approximately 45 trips per day on Alma Street north of 25th Street. Based upon the 1997 background weekday evening peak hour volumes (see Figure D-8 in Appendix D) and the assumption that the weekday evening peak hour volumes constitute approximately 9 percent of the average daily traffic (ADT), Alma Street's background ADT volumes are estimated to be approximately 3,000 trips north of 25th Street and approximately 1,700 trips both north and south of 22nd Street. Because the addition of 45 project-generated trips onto Alma Street do not exceed LADOT's percentage-increase thresholds as defined in Table 4.2-1, no significant impacts from project trips (assuming project access only via Gaffey Street) to any local residential streets would occur.

Access via Alma Street

Implementation of lane configurations and traffic controls (i.e., stop signs at proposed driveways would be required) by the year of project completion would be required for use of Alma Street as the main access.

Trips expected to be generated with project access only via Alma Street were distributed and assigned to the 1997 background traffic volumes (see Figures D-11 and D-12 in Appendix D). LOS analyses for 1997 assuming project completion with project access only via Alma Street were conducted at the 13 study intersections based upon the traffic volumes. The results of these analyses are summarized in Table 4.2-5.

Table 4.2-5

Fort MacArthur Upper Reservation Alternative - 1997 Background-Plus-Project Weekday Levels-of-service With Project Access Via Alma Street

Intersection	Peak Hour Period	Background[a]		Background-Plus-Project[d]		V/C[b] Impact Due To Project	Significant[e]
		V/C[b]	LOS[c]	V/C[b]	LOS[c]		
Gaffey Street at Summerland Avenue	Morning Evening	0.487 0.737	A C	0.487 0.737	A C	- -	No No
Gaffey Street at I-110/SR-47 ramps	Morning Evening	0.389 0.658	A B	0.392 0.669	A B	+0.003 +0.011	No No
Gaffey Street at 1st Street	Morning Evening	1.091 0.918	F E	1.100 0.929/ 0.927[g]	F E/E[g]	+0.009 +0.011/ +0.009[g]	No Yes/ No
Gaffey Street at 7th Street	Morning Evening	0.861 0.797	D C	0.874 0.813	D D	+0.013 +0.016	No No
Gaffey Street at 9th Street	Morning Evening	0.821 0.813	D D	0.834 0.831	D D	+0.013 +0.018	No No
Gaffey Street at 22nd Street	Morning Evening	0.450 0.514	A A	0.467 0.635	A B	+0.017 +0.121	No No
Gaffey Street at 25th Street	Morning Evening	0.486 0.537	A A	0.523 0.591	A A	+0.037 +0.054	No No
Gaffey Street at 32nd Street	Morning Evening	0.172 0.205	A A	0.177 0.207	A A	+0.005 +0.002	No No
Gaffey Street at Leavenworth Drive[h]	Morning Evening	0.117 0.171	A A	0.125 0.176	A A	+0.008 +0.005	No No
Alma Street at 22nd Street[h]	Morning Evening	0.053 0.099	A A	0.054 0.101	A A	+0.001 +0.002	No No
Alma Street at 25th Street	Morning Evening	0.336 0.472	A A	0.375 0.523	A A	+0.039 +0.051	No No
Alma Street at Meade Drive/Project Access[h]	Morning Evening	0.055 0.055	A A	0.085 0.113	A A	+0.030 +0.058	No No
Pacific Avenue at 22nd Street	Morning Evening	0.409 0.558	A A	0.410 0.559	A A	+0.001 +0.001	No No

a Based upon volumes on Figures D-7 and D-8, and existing intersection lane configurations
b Volume-to-capacity ratio
c Level-of-service Refer to Table 3.2-1 for a discussion of level-of-service
d Based upon volumes on Figures D-11 and D-12, and existing intersection lane configurations
e Refer to Table 4.2-1 for a discussion of significant transportation impact criteria
f Based upon volumes on Figures D-11 and D-12, and proposed mitigation/lane configurations on Figure D-22
g Reflects traffic without consideration of ridesharing/with ridesharing
h Although stop sign controlled, analyzed for purposes of comparison as if traffic signal controlled

As shown in Table 4.2-5, 12 of the 13 intersections would operate at LOS D or better during both the weekday morning and evening peak hours in 1997, assuming full project development with project access only via Alma Street. At the Gaffey Street at 1st Street intersection, however, LOS F is projected for the weekday morning peak hour and LOS E is projected for the weekday evening peak hour.

The following specific project-related impacts would occur:

Intersections

(1) The only changes in LOS designation would occur during the weekday evening peak hour at the intersections of Gaffey Street at 7th Street and Gaffey Street at 22nd Street. At the intersection of Gaffey Street at 7th Street, LOS C without the project would become LOS D with the project. At the intersection of Gaffey Street at 22nd Street, LOS A without the project would become LOS B with the project. Neither is considered to be a significant impact by LADOT.

(2) At the intersection of Gaffey Street at 1st Street, a significant impact would occur during the weekday evening peak hour when ridesharing is not considered. The V/C ratio of 0.918 without the project would become 0.929 with the project (no ridesharing), an increase of 0.011. This increase would be considered a significant impact because it is 0.010 or more under LOS E or F conditions (see Table 4.2-1). When ridesharing (a requirement of LAAFB personnel) is considered, the V/C ratio would become 0.927 with the project, an increase of 0.009, which would not be considered a significant impact.

Local Residential Streets

Alma Street north of the Meade Drive project access is the only local residential street exhibiting the potential of being significantly impacted by project traffic per the LADOT criteria. The project (assuming access only via Alma Street) would add approximately 865 trips per day on Alma Street heading north between the Meade Drive project access and 25th Street (and approximately 45 trips per day heading south on Alma Street). Of the 865 northbound trips, approximately 45 trips per day would occur on Alma Street north of 25th Street (i.e., a loss of 820 trips per day at cross streets before reaching 25th Street). Based upon the 1997 background weekday evening peak hour volumes (see Figure D-8 in Appendix D) and the assumption that the weekday evening peak hour volumes constitute approximately 9 percent of the ADT, Alma Street's background ADT volumes are estimated to be approximately 1,400 trips between the Meade Drive project access and 25th Street, approximately 3,000 trips north of 25th Street, and approximately 1,700 trips both north and south of 22nd Street. Whereas the addition of 45 project-generated trips north of 25th Street does not exceed LADOT's percentage-increase thresholds, the addition of 865 trips per day on Alma Street between the Meade Drive project access and 25th Street does exceed the threshold. As a result, a significant impact would occur on Alma Street between the Meade Drive project access and 25th Street attributable to project trips (assuming project access only via Alma

Street). When ridesharing is applied to these trips, the reduced number of trips would still exceed the threshold.

Due to the potential traffic impact to Alma Street at Meade Drive (access) north to 25th Street, access from Alma Street (at Meade Drive) would be discouraged or restricted to emergency vehicles. No mitigation is available along this segment because of space limitations.

4.2.5 No Action Alternative

Assuming no project development, or the No Action Alternative, increased trip generation due to the project would not occur because the Proposed Action would not be implemented. The following discussions compare the No Action Alternative to the Proposed Action and each of the alternatives.

4.2.5.1 White Point Navy Housing

With respect to intersections, there is no substantial difference, based upon LADOT criteria, between the White Point Navy housing area and the No Action Alternative in terms of LOS. With respect to local residential streets, the No Action Alternative and the White Point Housing are virtually the same, based upon LADOT criteria.

4.2.5.2 Montgomery Navy Housing

With respect to intersections, there is no substantial difference, based upon LADOT criteria, between the Montgomery Navy housing alternative and the No Action Alternative in terms of LOS. With respect to local residential streets, the No Action Alternative and the Montgomery Navy housing alternative would be virtually the same; neither would result in any impacts to local residential streets.

4.2.5.3 Fort MacArthur Upper Reservation

The No Action Alternative is expected to experience the same LOS (LOS E) or congestion at the intersection of Gaffey Street at 1st Street, compared to the Fort MacArthur Upper Reservation Alternative. The No Action Alternative (1997 background) would result in a lesser V/C ratio than the Proposed Action (0.918 versus 0.927). With respect to the remaining 12 study intersections, there is no substantial difference, based upon LADOT criteria, between the Fort MacArthur Upper Reservation (both the Gaffey Street-only access and the Alma Street-only access) and the No Action Alternative in terms of LOS.

With respect to local residential streets, the No Action Alternative and the Fort MacArthur Upper Reservation Alternative are virtually the same, assuming access only via Gaffey Street. However, for the Fort MacArthur Upper Reservation Alternative assuming access only via Alma Street, the No Action Alternative is superior for the segment of Alma Street between the Meade Drive project access and 25th Street, based upon LADOT criteria.

4.2.6 Cumulative Impacts

According to LADOT, with the exception of the Proposed Action, there are no known projects with major traffic-generating significance envisioned for development by 1997 (related projects) which would require inclusion in this analysis. Based upon information provided by LADOT, 1997 non-project or background traffic volumes in the study areas include a continuation of existing traffic flow plus an increase in traffic resulting from ambient growth in the San Pedro area. In order to reflect ambient traffic growth in the vicinity of the proposed housing sites, a vehicular growth rate of 1.0 percent per year was applied to all existing intersection volumes. This ambient growth rate, which was stipulated by LADOT, is based upon historical trends in traffic growth for the study area. The ambient traffic growth would consider the potential impacts, both insignificant and significant, of projects that are foreseeable to the year 1997. Potential cumulative impacts have thus been considered as part of the direct impacts analyzed in this chapter.

4.2.7 Unavoidable Adverse Impacts

For the Fort MacArthur Upper Reservation, the increased traffic generation and increased V/C ratios without consideration of ridesharing are unavoidable adverse impacts associated with the worst-case analysis of one primary access (i.e., access either only via Gaffey Street or only via Alma Street). However, when ridesharing is considered, these impacts would be reduced to less than significant levels, and no unavoidable adverse impacts would be expected.

For the Fort MacArthur Upper Reservation, unavoidable adverse impacts to traffic on Alma Street between Meade Drive and 25th Street would result if Alma Street would be used as the only access to the housing site. This impact would be reduced to acceptable levels if both accesses were available, since it is anticipated that the Gaffey Street route would be more heavily traveled (with the Alma Street access serving for emergency use only).

4.2.8 Mitigation Measures

No mitigation measures are required for the Proposed Action, Montgomery Navy housing alternative, or the Fort MacArthur Upper Reservation alternative (with Gaffey street access). The Fort MacArthur Upper Reservation alternative (with Alma Street access) would result in a significant traffic impact that cannot be mitigated by any means other than restricting access at Alma Street.

4.3 PUBLIC SERVICES

4.3.1 Significance Criteria

A Proposed Action or alternative would have a significant impact on public services if it would have a detrimental influence on existing services, or result in a need for new or altered services, including:

(1) A need for additional police or fire protection, manpower, equipment or facilities;

(2) A reduction in the acceptable response times of police or fire protection services;

(3) A need for additional medical facilities in the community because of additional personnel in the area;

(4) A need for additional schools and libraries in the community due to project related population increases; and

(5) A need for additional parks and recreational facilities in the community because of additional personnel in the area (OPR, 1992).

4.3.2 White Point Navy Housing

4.3.2.1 Police

Under the Proposed Action, the Air Force would demolish 78 Navy housing units and construct up to 96 new Air Force housing units on the existing Navy housing site and an adjacent 8 acres. Security for this site would be provided by the Air Force, with additional support by the LAPD. The Air Force would extend the security provided by a civilian security service at the adjoining White Pacific Heights Air Force housing area. The LAPD may be called in to assist Air Force security personnel on an as-needed basis. The slight increase in the number of families residing in the housing units would not be considered an impact on the LAPD. Additional police personnel, equipment and facilities would not be required.

4.3.2.2 Fire Protection

The LAFD currently provides fire protection services to the housing area. This arrangement would not be changed. The increase in the number of families residing in the housing units would not result in an impact on fire protection services provided by the LAFD. Therefore, additional fire protection services would not be required.

4.3.2.3 Medical Facilities

Existing health care facilities at the San Pedro Peninsula Hospital in Harbor City, as well as other medical facilities in the area, are considered adequate to accommodate this alternative. There would be a slight population increase associated with the addition of up to 18 more new Air Force housing units on this site. Paramedic services are provided by LAFD, which has adequate available paramedic vehicles and personnel at nearby stations. In the event of an extremely catastrophic accident resulting in a very large number of patients, other facilities may provide services, as needed. These facilities may include the Bay Harbor Hospital, Kaiser Foundation Hospital and Torrance Memorial Medical Center. In addition, members of the military and their dependents occupying the new housing would seek routine out-patient treatment at the LAAFB medical clinic. New or additional medical or health care facilities would not be required.

4.3.2.4 Schools

There would be a small population increase as a result of the proposed action. Students from Navy families currently enrolled in area schools would be replaced by students from Air Force families. Los Angeles Unified School District has developed student generation factors based on housing type and income areas (LAUSD, 1980). For single-family homes in a middle income area with three or more bedrooms, LAUSD has estimated that each housing unit would generate 0.5 elementary, 0.25 junior high (middle), and 0.25 senior high school students. The additional housing units would generate a minimal number of additional elementary, junior high (middle) and high school students. Table 4.3-1 provides a breakdown of expected enrollment in schools that may be affected through the year 1999. The projected increases in enrollment would not exceed capacity limits. Therefore, significant adverse impacts to schools are not expected.

Table 4.3-1

Projected Enrollments for Schools in the White Point Area

School	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999
Point Fermin Elementary	377	377	372	368	374
White Point Elementary	449	427	399	377	341
R.H. Dana Junior High	1,635	1,591	1,613	1,671	1,712
San Pedro Senior High	2,020	2,643	2,533	2,464	2,386
Source: LAUSD, 1994 and 1995					

4.3.2.5 Libraries

The San Pedro Regional Library considers its facility adequate to accommodate the needs of the community, including the anticipated population increase from the proposed new housing (Hseih, 1994). Therefore, no significant adverse impacts on library facilities in the area are expected.

4.3.2.6 Recreation

To determine recreational impacts, the LADRP has established a standard of four acres of park facilities per 1,000 residents (Conetta, 1994). With project implementation, the population of the region of influence (ROI) (see Chapter 3.12) would be approximately 21,000. There are currently 415.2 acres of park facilities in the San Pedro area (see Figures 3.3-3 and 3.3-4 and Table 3.3-3). Based on LADRP criteria, 84 acres of park facilities are required. Therefore, no adverse impacts associated with the availability of recreation are expected. Existing recreation facilities are considered adequate for the increase in population associated with the proposed housing in San Pedro. Therefore, no significant adverse impacts on recreation facilities in the area are expected.

4.3.3 Montgomery Navy Housing

4.3.3.1 Police

The slight increase in the number of families residing in the housing would not be expected to result in an impact on the LAPD (see Subchapter 4.3.2.1). Additional police personnel, equipment and facilities would not be required.

4.3.3.2 Fire Protection

The slight increase in housing units that would be built would not be expected to result in an impact on fire protection services provided by the LAFD (see Subchapter 4.3.2.2). Additional fire protection services would not be required.

4.3.3.3 Medical Facilities

Existing health care facilities are considered adequate to accommodate this alternative (see Subchapter 4.3.2.3).

4.3.3.4 Schools

There would be a small population increase as a result of this alternative. Students from Navy families currently enrolled in area schools would be replaced by students from Air Force families. It is assumed that the number of students by school type (elementary, middle and high school) would remain approximately the same as under the current distribution. Table 4.3-2 provides a breakdown of expected enrollment in schools that may be affected by this alternative through the year 2000. Therefore, significant adverse impacts to schools are not expected.

Table 4.3-2

Projected Enrollments for Schools in the Montgomery Housing Area

School	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
Taper Avenue Elementary	732	736	722	717	697
Dodson Middle School	1,234	1,216	1,190	1,176	1,199
Narbonne Nathaniel Sr. High	2,232	2,296	2,335	2,305	2,275
San Pedro Senior High	2,643	2,533	2,464	2,386	2,348
Source: LAUSD, 1995					

4.3.3.5 Libraries

Significant adverse impacts on library facilities are not expected (see Subchapter 4.3.2.5).

4.3.3.6 Recreation

Recreation uses in the immediate area of the Montgomery site are limited, because the site is surrounded by heavy industrial uses. However, there are approximately 415.20 acres of park facilities in the San Pedro area. As described in Subchapter 4.3.2.6, 84 acres of park facilities are required based on LADRP criteria. Therefore, no adverse impacts associated with the availability of recreation are expected.

4.3.4 Fort MacArthur Upper Reservation

4.3.4.1 Police

Security for the proposed new housing would be provided by the Air Force, with additional support by the LAPD. The Air Force would use a civilian security service to provide 24-hour on-site security and personnel who would respond to calls within the new housing area. The LAPD may be called in to assist Air Force security personnel on an as-needed basis. This situation would be similar to the security arrangements provided at other Air Force housing units in the area.

The primary concern of the LAPD is to have adequate police personnel to provide timely and efficient service to the community. The LAPD has indicated that a housing area of this size has the potential to impact police services in the area if the police are required to respond, as primary or backup units, to numerous calls (Romero, 1994). However, because the site would be fenced and the Air Force would provide on-site security, significant increases in the number of LAPD calls are not expected. While some LAPD responses would probably occur, this commitment of police is not expected to result in delayed response times to the proposed housing site or vicinity. Additional police personnel, equipment and facilities are not expected to be required.

4.3.4.2 Fire Protection

Adequacy of fire protection for a given area is based on required fire flow (maximum flow of water available to fire fighters under emergency demand), response distance from existing fire stations (including traffic conditions and time of day) and the LAFD judgment regarding other needs in the area. The minimum required fire flow is 2,500 gallons per minute from three simultaneously flowing fire hydrants. To comply with LAFD response criteria, the closest engine company should be located within 1.5 miles and the closest truck company should be located within a 2-mile radius (Ainsworth, 1994).

According to the LAFD, it appears that the existing fire fighting facilities, response times, manpower, and equipment are adequate to serve the proposed development if minimum fire flow is met (Ainsworth, 1994). However, the LAFD has expressed a concern that the minimum fire flow requirement may not be adequate for the project, depending upon the intensity of development at the site. The Air Force has met with the LAFD to ensure that fire protection requirements, including minimum fire flow, are adequate based on project design. Construction of the proposed housing units would be controlled by stringent Air Force guidelines, comparable to those used by the City of Los Angeles. Additional fire protection services are not expected to be required.

4.3.4.3 Medical Facilities

New or additional medical or health care facilities are not expected to be required (see Subchapter 4.3.2.3).

4.3.4.4 Schools

Based on LAUSD student generation factors, the proposed new housing could generate 48 additional elementary school students, and 24 additional students each for the junior high (middle) and high schools. Students who would reside in the new housing at the Fort MacArthur Upper Reservation would attend Point Fermin Elementary, R.H. Dana Junior High, and San Pedro High schools (LAUSD, 1994). White Point Elementary School could also be utilized, if needed.

Current enrollments do not exceed capacity limits. The projected increases in school enrollment would not exceed capacity limits. Although some unquantifiable number of students would be relocated from other schools in the Los Angeles region, and school enrollment within the vicinity of the site would increase, significant adverse impacts on schools are not expected.

Buildings belonging to the LAUSD would be removed from the site prior to construction of the new housing. Some of these buildings are part of the Angels Gate Continuation High School. The LAUSD plans to relocate these buildings elsewhere on the Fort MacArthur Upper Reservation, on property not leased to the Air Force (Hall, P., 1994). Because the educational functions and services provided in these buildings would be relocated, there would be no adverse impact on schools.

4.3.4.5 Libraries

Significant adverse impacts on library facilities are not expected (see Subchapter 4.3.2.5).

4.3.4.6 Recreation

A LAUSD athletic field currently located on the site would be eliminated by construction of the new housing. It is planned that the existing athletic field would be replaced by LADRP with two new athletic fields elsewhere on the Fort MacArthur Upper Reservation, in accordance with the Master Plan for Angels Gate Park. Facilities yet to be developed at the park include a picnic area, field house and sports field. In addition, there are enough park facilities in the area to meet LADRP requirements. A community swimming pool located on the Fort MacArthur Upper Reservation west of Gaffey Street (Figure 2.7-2) is outside the boundaries of the housing site and would not be affected. Therefore, no adverse impacts to recreational resources are expected.

4.3.5 No Action Alternative

Under the No Action Alternative, the proposed new housing would not be developed. Existing conditions on the alternative housing site locations would remain unchanged. While demands on public services would not occur at the alternative housing site locations, similar demands would be placed by the military families as they are settled elsewhere in the Los Angeles region.

4.3.6 Cumulative Impacts

In conjunction with ongoing regional growth and development, White Point and the Fort MacArthur Upper Reservation Alternative would cumulatively increase the demand on public services, and may diminish the ability of police and fire departments to adequately serve the area. However, because the Air Force would maintain on-site security and meet fire protection requirements, the cumulative effect on these services is not considered significant.

No cumulative impacts to public services are anticipated from the Montgomery Navy Housing Alternative. Since present population levels would be reduced, no changes to present public services would result.

4.3.7 Unavoidable Adverse Impacts

Increased demands on public services are unavoidable aspects associated with the proposed new housing. However, some of these demands would be accommodated by the Air Force, and the remainder can be readily accommodated by existing services. Demands on public services would not change significantly from implementation of any project alternative. Significant unavoidable adverse impacts to public services are not expected.

4.3.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.4 UTILITIES

4.4.1 Significance Criteria

An impact to utilities would be significant if it would cause the need for substantial improvements or upgrades to the existing utility infrastructure. Impacts would be significant if the demand generated by the Proposed Action or an alternative met or exceeded the capacity of existing utility systems, or otherwise required their expansion, and/or the construction of major new facilities (OPR, 1992).

4.4.2 White Point Navy Housing

4.4.2.1 Water Supply

Construction

Under this alternative, the Air Force would demolish 78 existing White Point Navy housing units and construct up to 96 new Air Force housing units with improvements to on-site utility infrastructure. Water would be used during the 20 months of construction, including the 2-month demolition period. This consumption would not be expected to place an increased demand on the water supply or service facilities.

Operation

Historically, water use per household in southern California has been lower in colder, wetter coastal areas than in the hotter, drier inland areas. The Metropolitan Water District of Southern California (Metropolitan) has calculated an average residential use of 97 gallons per day (gpd) per individual on the coastal fringe (Metropolitan, 1993) which would include the White Point area. Current water consumption at the existing White Point Navy housing area is approximately 29,356 gallons per day (gpd) based on 3.88 persons per housing unit. Therefore, water consumption during operation of the proposed new housing (96 units) would increase by 6,776 gpd over current levels. Metropolitan has estimated demand in the lower Los Angeles County area (designated the common pool service area) to be approximately 1,226,400 acre-feet per year for 1996 (Metropolitan, 1993). The estimated total project-related consumption would represent a negligible portion of the estimated annual demand in this area.

The Air Force would construct a new domestic water supply line to the White Point site. Existing water mains would be used for fire fighting requirements. The proposed new housing would incorporate water saving fixtures, such as low-flow showers and toilets, as required by existing Air Force and City of Los Angeles building codes. Water conservation measures, such as the review of landscape watering patterns and schedules, and the subsequent implementation of any revisions to those patterns, would be part of routine maintenance. These additional water conservation methods would lower the average per capita residential water use estimated above.

Metropolitan estimates regional water demands in the Los Angeles Basin based on the adopted population and growth plan of the Southern California Association of Governments (SCAG). The increase in population in the ROI from the proposed new housing would not be significant according to SCAG growth criteria (see Chapter 4.12, Socioeconomics). The existing water supply infrastructure is adequate to support the number of proposed housing units on the site, including adequate fire flow volumes. Modifications to the water mains would not be required. Therefore, no significant adverse impacts to water resources or facilities would occur.

4.4.2.2 Wastewater

Construction of the new residential housing at White Point would result in a slight increase the amount of wastewater generated in the project area. Approximately 165 gallons of wastewater per day are generated per capita in the City of Los Angeles (City of Los Angeles, 1989). Current wastewater generation is estimated at 49,936 gallons per day. The proposed housing area would generate up to an additional 11,527 gpd over current levels, requiring treatment at the Terminal Island Treatment Plant (TITP). TITP currently treats approximately 18 million gallons per day (mgd) and has a design capacity of 30 mgd. This leaves an excess average capacity of approximately 12 mgd in the TITP treatment area. The increase in wastewater generation from the Proposed Action would utilize less than 0.10 percent of this excess available capacity. Available TITP facilities and their capacity are more than sufficient to handle the additional effluent generated as a result of the Proposed Action, and no additional treatment facilities would be required. Since the existing sewer system is sufficient to handle the additional effluent generated as a result of the new residential units at White Point, no adverse impacts to wastewater would occur as a result of the Proposed Action.

4.4.2.3 Solid Waste

Construction

Solid waste would be generated during demolition and construction of new housing at White Point. Existing housing units and fencing would be demolished, requiring disposal in existing facilities. An estimated total of approximately 10,069 cubic yards of demolition material would be generated during construction. Demolition material would be disposed of on a weekly basis by the construction contractor. Construction debris would be disposed of at the Falcon Refuse Center, which has no limit on the volume of non-contaminated construction debris accepted per day. Solid waste generation as a result of construction would occur for only a short duration, and it is not expected to significantly impact solid waste disposal facilities.

Operation

Occupancy of the proposed new housing would increase the amount of solid waste generated in the project area. City of Los Angeles Environmental Impact Report Guidelines assume that 15 pounds of solid waste is generated per housing unit per day. The existing Navy housing area generates approximately 1,170 pounds of solid waste per day. Development of the new housing units at White Point would result in an increase of 270 pounds of solid waste per day over existing conditions.

The additional solid waste would be disposed of at BKK landfill. The BKK landfill currently has an excess capacity of 1,000 tons per day available before they reach their permitted limit. The volume of additional solid waste generated by the proposed new housing would represent 0.01 percent of the daily space available. Since additional solid waste facilities would not be required, adverse impacts associated with solid waste disposal are not expected.

Waste collection services for the single-family dwellings would be provided by local private contractors and represent slightly less than one-half of a refuse pick-up route. The Air Force would be responsible for payment of waste collection services on a cost-reimbursable basis (i.e., fees would not be funded through property taxes). Therefore, adverse impacts are not expected.

4.4.2.4 Energy

Construction

Construction of the proposed housing would require fossil fuels for operation of construction equipment and automobiles for construction worker transportation. The total amount of diesel fuel used by construction equipment and trucks is estimated to be approximately 55,000 gallons during construction. This number is based on the following estimates: number and type of construction equipment; construction occurring over a period of approximately one and one-half years (252 work days per year); construction equipment operating up to 8 hours per day; an average of 1.65 gallons of diesel fuel used per hour by construction equipment; and trucks operating at 10 mpg. In 1993, the amount of diesel fuel consumed in California was approximately 3.3 billion gallons (Excise Tax Board, 1993). The diesel fuel requirements during construction would represent approximately 0.002 percent of the annual diesel fuel use in California (based on 1993 data). The amount of fuel that would be required for construction is minor, and would not impact the regional fuel supply.

It is estimated that approximately 190 passenger vehicles would be used by construction workers commuting to and from the proposed housing site during construction. Construction workers are estimated to travel approximately 50 miles per day, and the average gas mileage per vehicle is estimated to be 20 miles per gallon. The estimated amount of gasoline used during the one and one-half year construction period would be approximately 49,000 gallons. It is estimated that in Los Angeles County alone, the annual consumption of gasoline is approximately 3.14 billion gallons (Lusk, 1992). The increase in consumption would represent less than 0.002 percent of the annual consumption for Los Angeles County. This increase for the Proposed Action is considered minimal, and would not impact regional supplies.

Operation

Occupancy of the proposed housing would result in a slight increase in the use of fossil fuels (diesel and gasoline), electricity, and natural gas. Fossil fuel use would primarily be gasoline used for automobiles. Using the South Coast Air Quality Management District (SCAQMD) Mobile Assessment for Air Quality Impacts (MAAQI) computer program, the total project vehicle miles traveled per day was estimated at 12,330 miles. Using an average of 20 miles per gallon gasoline consumption, a total of approximately 617 gallons per day would be consumed during project operation under this alternative. This would represent 0.007 percent of the annual consumption in Los Angeles County. The project-related increase in fuel consumption would be minimal, and would not adversely impact regional supplies. Additionally, the net increase of vehicle miles traveled per day would be less due to the absence of work-related trips of Navy personnel who would no longer reside at the site.

Based on the MAAQI program calculations, electrical energy consumption at this site would increase by 414.6 kWh over existing consumption, which represents a negligible increase. The City of Los Angeles Department of Water and Power (LADWP) system has a capacity of 11,000 megawatts (ES, 1993). The increase in consumption would result in the usage of a negligible amount of the current capacity. LADWP is expected to have sufficient capacity to handle this increased requirement without reducing its current level of service. Construction of new energy facilities would not be required, and the availability of regional supplies would not be affected.

Based on the MAAQI program calculations, natural gas consumption at this site would increase by 5,894 cf/yr over existing consumption. The Southern California Gas Company is expected to have sufficient capacity to handle this increased requirement without reducing its current level of service. Construction of new energy facilities would not be required, and the availability of regional supplies would also not be affected.

4.4.3 Montgomery Navy Housing

4.4.3.1 Water Supply

Under this alternative, the Air Force would demolish approximately 91 existing Montgomery Navy housing units and construct up to 96 new Air Force housing units with improvements to on-site utility infrastructure. Water consumption during construction would be the same as described for the White Point housing site (see Subchapter 4.4.2.1). Water consumption during operation would increase by approximately 1,884 gpd over current levels at this site. The existing water supply infrastructure is adequate to support the number of proposed housing units on the site, including adequate fire flow volumes. Modifications to the water mains would not be required. Therefore, no significant adverse impacts to water supply would occur.

4.4.3.2 Wastewater

This alternative would result in an increase of 3,204 gpd of wastewater over existing volumes at this site. The existing sewer system is adequate to support the number of proposed housing units on the site. Therefore, no adverse impacts to wastewater would occur as a result of this alternative.

4.4.3.3 Solid Waste

Construction

Solid waste would be generated during demolition and construction of new housing at the Montgomery site. Existing housing units and fencing would be demolished, requiring disposal in existing facilities. An estimated total of approximately 8,909 cubic yards of demolition material would be generated during construction. Demolition material would be disposed of on a weekly basis by the construction contractor. Construction debris would be disposed of at the Falcon Refuse Center, which has no limit on the volume of non-contaminated construction debris accepted per day. Solid waste generation as a result of construction would occur for only a short duration, and it is not expected to significantly impact solid waste disposal facilities.

Operation

This alternative would result in an increase of 75 pounds of solid waste per day over the existing level. This increase would represent a negligible amount of the daily landfill space available (see Subchapter 4.4.2.3). Since additional solid waste facilities would not be required, significant adverse impacts to solid waste facilities would not occur.

4.4.3.4 Energy

Construction

Energy consumption during construction for this alternative would be the same as that for White Point (see Subchapter 4.4.2.4). Energy consumption for construction is minor in comparison to regional supplies, and significant adverse impacts on energy supplies are not expected.

Operation

Gasoline consumption under this alternative would be less than that described for White Point (see Subchapter 4.4.2.4). The MAAQI computer model estimated the total project vehicle miles traveled per day at 10,992 miles. Using an average of 20 miles per gallon gasoline consumption, a total of approximately 550 gallons per day would be consumed under this alternative, representing 0.006 percent of the annual consumption in Los Angeles County. This increase in fuel consumption would be minimal, and would not adversely impact regional supplies.

Electrical energy consumption at this site would increase by a negligible amount over existing consumption at this site. LADWP is expected to have sufficient capacity to accommodate this increase and new energy facilities would not be required.

Natural gas consumption at this site would increase by a negligible amount over existing consumption at this site. Sufficient capacity is available and new energy facilities would not be required.

4.4.4 Fort MacArthur Upper Reservation

4.4.4.1 Water Supply

Under this alternative, 96 new housing units would be constructed. Lines to connect the proposed new housing units to the existing water mains would be installed as required during construction. Connection locations and dimensions would be selected by the project design engineer, and evaluated and approved by LADWP. The existing water mains that would be used are expected to be adequate. Adverse impacts to water supply recourses or facilities are not expected. Water consumption during construction would be the same as described for the White Point housing site (see Subchapter 4.4.2.1).

Based upon the Metropolitan average residential use factor for the coastal fringe (see Subchapter 4.4.2.1), the estimated water consumption of the new housing units at the Fort MacArthur Upper Reservation during operation would be 36,133 gpd. It is assumed that open space within the housing site would consume another 10,000 gpd, for a total consumption of 46,133 gpd (approximately 51 acre-feet per year). This increase represents a negligible increase in the percent of the annual demand for this area (see Subchapter 4.4.2.1). Based upon SCAG's growth criteria (see Chapter 4.12, Socioeconomics), the increase in population in the ROI from the proposed new housing units would not be significant. Therefore, the expected increase in water usage would not exceed anticipated demand, and significant adverse impacts on water supply resources and facilities are not expected.

4.4.4.2 Wastewater

The exact location, dimensions, and adequacy of sewer lines needed to connect the proposed housing to the existing sewer mains would be reviewed during project design. Connection lines from the proposed housing to the existing mains would be installed as required. The existing mains that would be used for the proposed housing are expected to be adequate. The City of Los Angeles Department of Public Works (LADPW) would evaluate and approve draft and final project design plans, and no adverse impacts from connections to the wastewater system are expected.

Construction of residential housing on Fort MacArthur Upper Reservation would increase the amount of wastewater generated in the project area. Based on the wastewater generation rates estimated by the City of Los Angeles (see Subchapter 4.4.2.2), wastewater generation would increase by 61,463 gpd. This increase would represent 0.5 percent of the TITP excess capacity (see Subchapter 4.4.2.2). Available TITP facilities and their capacity are sufficient to handle the additional effluent generated as a result of this alternative, and no additional treatment facilities would be required. All discharges from the site into the public sewer system would be handled in accordance with applicable

State of California Regional Water Quality Control Board standards, and would be monitored by LADPW.

4.4.4.3 Solid Waste

Construction

Solid waste would be generated during demolition and construction of the Proposed Action. Several buildings and existing fencing would be demolished, requiring disposal in existing facilities. An estimated total of approximately 3,422 cubic yards of demolition material would be generated during construction. Demolition material would be disposed of on a weekly basis by the construction contractor. Construction debris would be disposed of at the Falcon Refuse Center, which has no limit on the volume of non-contaminated construction debris accepted per day. Solid waste generation as a result of construction would occur for only a short duration, and in small enough quantities that it is not expected to significantly impact solid waste disposal facilities.

Operation

Based upon the City of Los Angeles Environmental Impact Report Guidelines (see Subchapter 4.4.2.3), the proposed new housing at this alternative site would generate approximately 1,440 pounds of solid waste per day. If the Assembly Bill 939 solid waste disposal reductions requirements are met, waste generation for this alternative would be reduced to approximately 720 pounds in 2000. However, as a worst-case analysis, it is assumed that the additional waste generated by the proposed housing would not be reduced.

The volume of additional solid waste generated by the proposed new housing would represent a negligible amount of the daily space available at the BKK landfill (see Subchapter 4.4.2.3). Since additional solid waste facilities would not be required, adverse impacts associated with solid waste disposal are not expected.

Waste collection services for the maximum of 96 single-family dwellings would be provided by local private contractors and represent slightly less than one-half of a refuse pick-up route. The Air Force would be responsible for payment of waste collection services on a cost-reimbursable basis (i.e., fees would not be funded through property taxes). Therefore, adverse impacts are not expected.

4.4.4.4 Energy

Construction and occupancy of the proposed housing would result in an increase in the use of fossil fuels (diesel and gasoline), electricity, and natural gas. Fossil fuel use would primarily be gasoline used for automobiles. Using the MAAQI computer program (see Subchapter 4.4.2.4), gasoline consumption during construction under this alternative, would be similar to the White Point housing site (see Subchapter 4.4.2.4). Gasoline consumption during occupancy of the housing would be slightly more than expected for White Point (which is the same distance to LAAFB), because the net increase at White Point is affected by the absence of work-related trips of Navy personnel who would no longer reside at the site. The project-related increase in fuel consumption would be minimal, and would not adversely impact regional supplies.

Based on the MAAQI program calculations, 5,626.5 kilowatt hours (kWh) of electricity would be used annually under this alternative. The increase in consumption would result in the usage of 0.0001 percent of the current capacity (see Subchapter 4.4.2.4). LADWP is expected to have sufficient capacity and new energy facilities would not be required.

Based on the MAAQI program calculations, 6,650 cubic feet of natural gas would be used per month, or approximately 80,000 cubic feet per year. The Southern California Gas Company is expected to have sufficient capacity to handle this increased requirement without reducing its current level of service. Construction of new energy facilities would not be required, and the availability of regional supplies would also not be affected.

4.4.5 No Action Alternative

Under the No Action Alternative, the proposed new housing would not be constructed on any of the sites, and additional utility infrastructure connections would not be required. While military families would not use utilities at any of these sites, they would consume or generate similar volumes at other housing areas in the Los Angeles region, resulting in similar potential impacts.

4.4.6 Cumulative Impacts

Increased demands on utilities would result from the White Point, Montgomery, and Fort MacArthur Upper Reservation alternatives. However, there are adequate supplies and facilities to accommodate these minor increases, and significant demands would not be placed on utilities. No significant cumulative impacts to utilities are expected.

4.4.7 Unavoidable Adverse Impacts

Increased demands on utilities are an unavoidable aspect of the proposed new housing at any of the sites. However, the project-related increases would be minimal, and no significant adverse impacts are expected.

4.4.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

4.5.1 Significance Criteria

The Proposed Action or an alternative would have a significant impact on the environment if it would create a potential public health hazard, or involve the use, production, or disposal of materials that pose a hazard to people, animals, or plants in the affected area (OPR, 1992). In addition, impacts would be considered significant if remediation activities were restricted or halted by the Proposed Action.

4.5.2 White Point Navy Housing

4.5.2.1 Hazardous Materials and Hazardous Wastes

The proposed housing units would be constructed using normal residential construction techniques, and would not require hazardous materials. However, the use of petroleum, oil and lubricant (POL) products would be used for construction equipment. These would be stored in proper containers, and secondary containment would be used to prevent the spread of any accidental spills. Construction equipment would be maintained in proper working order, and best management and good housekeeping practices would be followed to minimize the risk of POL leakage. The Stormwater Pollution Prevention Plan (described in Chapter 4.7) would include best management practices to minimize or eliminate the potential for spills and leakage during construction, and significant adverse impacts associated with POL spills or leakage are not anticipated.

With the exception of household cleaners and pesticides, hazardous materials would not be used and hazardous wastes would not be generated by the residents of the proposed housing. Household hazardous wastes expected to be generated can be accommodated by existing City of Los Angeles and Air Force household hazardous waste collection programs. Significant volumes of household hazardous wastes are not expected to be generated.

There is a small potential to encounter previously unknown and undocumented contaminated soils during excavation and grading due to past military uses at the 8-acre site. Potential adverse impacts to public health and the environment could result if uncovered contaminated soils which exceed regulatory action levels are improperly handled or left in place. If contaminated soils are uncovered during construction, the contractor would halt earthmoving activities or redirect them away from the affected area. Construction would not be allowed to proceed in the affected area until the soils were sampled and analyzed, and any soil remediation requirements were determined and implemented. With implementation of these practices, impacts would not be considered significant.

4.5.2.2 Air Force Installation Environmental Management Program

There are no Installation Environmental Management Programs in effect at the White Point site. An Air Force Installation Environmental Management Program would not be required, because the proposed housing would not obligate the use of hazardous materials nor generate significant volumes of hazardous wastes. No significant adverse impacts to Installation Environmental Management Programs would occur.

4.5.2.3 Installation Restoration Program

No IRP sites have been documented at the housing area. The IRP sites at the White Point Nike missile site are unlikely to impact environmental conditions at the White Point housing site due to a southwestern groundwater gradient in the area. The housing project would not be expected to hinder remediation activities at these IRP sites.

4.5.2.4 Other Studies

No other environmental study areas have been identified at the White Point Navy housing area, the 8-acre site, or in its immediate vicinity. No adverse environmental impacts associated with other environmental sites are expected.

4.5.2.5 Asbestos

Preliminary asbestos surveys indicated the presence of asbestos-containing materials (ACM) at the housing area. The survey also indicated that much of the ACM were in good physical condition (Navy, 1992d). SCAQMD Rule 1403 requires surveying buildings that are scheduled for demolition for asbestos, and regulates the handling and disposal of ACM (see discussion in subchapter 3.8.2.4). Additional measures beyond those required by SCAQMD Rule 1403 are not expected to be required. With implementation of SCAQMD Rule 1403 procedures, no significant adverse impacts associated with asbestos removal are expected.

4.5.2.6 Pesticide Use

Pesticides were used in limited amounts, and, except for those used by the housing residents, bulk storage of pesticides did not occur at the housing site. Pesticide use in the new housing area would be limited to small quantities required for normal applications. There would be no bulk storage of pesticides on the site, and no adverse impacts associated with pesticide use are expected.

4.5.2.7 Radon

Indoor radon levels at the housing area are well below the recommended action level. There are no records of high radon levels in the area, and high radon levels are not expected to develop in the new housing. No significant adverse impacts from radon are expected.

4.5.2.8 Lead

The preliminary lead survey conducted at the White Point housing area indicated lead-based paint. Demolition of the existing structures on the housing site would be required for construction of the new housing to proceed. These structures are known to contain lead-based paint. According to present State of California Department of Toxic Substances Control (DTSC) disposal regulations for lead, if the lead-based paint is still bonded to the building material (in this case the building wall), then it would not be considered hazardous waste. However, once the lead-based paint is removed from the building material, then it is classified as hazardous waste and requires special disposal. If lead-based paint is removed from the building materials on the site during demolition, it may contaminate the surrounding soils, or be inhaled or ingested as dust. Demolition of the existing housing will be conducted in accordance with DTSC and other applicable regulations for disposal of lead. The demolition contractor would conduct demolition activities for the structures on-site in a manner to avoid stripping paint from surfaces. Measures may include, but are not limited to, wetting building surfaces during demolition, avoiding crushing or pulverizing building materials, and wetting building debris stockpiles. Implementation of these measures would prevent adverse impacts from lead exposure during and after demolition. Therefore, significant adverse impacts from long-term exposure to high lead levels are not expected.

Lead piping and lead solder for piping connections probably exist at the housing site. These old lead pipes and connections would not be used for the new housing units. If old piping is encountered during demolition and construction, it would be removed and properly disposed in accordance with existing regulations and standard procedures. Therefore, significant adverse impacts from long-term exposure to high lead levels due to lead piping and soldered connections are not expected.

4.5.2.9 Ordnance

There are no records of any disposal of ordnance at the White Point Navy housing area or on the adjacent 8-acre site. No explosives would be used during demolition of the existing structures on the site. Standard construction safety procedures would be followed during demolition. Therefore, no significant adverse impacts related to ordnance are expected.

4.5.2.10 Polychlorinated Biphenyls

There are no transformers at the White Point housing area or the adjacent 8-acre site. Therefore, there will be no impacts related to polychlorinated biphenyls (PCB) from the removal of transformers. The use of PCB-containing transformers has long been discontinued and will not be used for this housing project.

4.5.3 Montgomery Navy Housing

4.5.3.1 Hazardous Materials and Hazardous Wastes

Potential impacts from hazardous materials and hazardous wastes would be the same as described in Subchapter 4.5.2.1. With implementation of the management practices described in Subchapter 4.5.2.1, impacts would not be considered significant.

4.5.3.2 Air Force Installation Environmental Management Program

As described in Subchapter 4.5.2.2, no significant adverse impacts to Installation Environmental Management Programs would occur.

4.5.3.3 Installation Restoration Program

No IRP sites have been documented at the housing area. The IRP sites at the DLA property, the former Taper Avenue Navy housing, the Palos Verdes Navy housing, and the former Fire Fighters School are unlikely to impact environmental conditions at the Montgomery Navy housing site due to a southeastern groundwater flow in the area (Bechtel, 1996). The housing project would not be expected to hinder remediation activities at these IRP sites.

4.5.3.4 Other Studies

No other environmental study areas have been identified at the Montgomery Navy housing area, or its immediate vicinity. No adverse environmental impacts associated with other environmental sites are expected.

4.5.3.5 Asbestos

Preliminary asbestos surveys indicated the presence of ACM at the housing area. The survey also indicated that much of the ACM were in good physical condition (Navy, 1992d). With implementation of SCAQMD Rule 1403 procedures, no significant adverse impacts associated with asbestos removal are expected.

4.5.3.6 Pesticide Use

As described in Subchapter 4.5.2.6, no adverse impacts associated with pesticide use are expected.

4.5.3.7 Radon

As described in Subchapter 4.5.2.7, no significant adverse impacts from radon are expected.

4.5.3.8 Lead

The preliminary lead survey conducted at the Montgomery housing area indicated lead-based paint. Some of the areas sampled in the survey were visibly damaged. Demolition activities would be conducted as described in Subchapter 4.5.2.8. Therefore, significant adverse impacts from long-term exposure to high lead levels are not expected.

4.5.3.9 Ordnance

There are no records of any disposal of ordnance at the Montgomery Navy housing area. As described in Subchapter 4.5.2.9, no significant adverse impacts related to ordnance are expected.

4.5.3.10 Polychlorinated Biphenyls

There are no transformers at the Montgomery Navy housing site. Therefore, there will be no impacts related to polychlorinated biphenyls from the removal of transformers. PCB-containing transformers will not be used for this housing project.

4.5.4 Fort MacArthur Upper Reservation

4.5.4.1 Hazardous Materials and Hazardous Wastes

Potential impacts from hazardous materials and hazardous wastes would be the same as described in Subchapter 4.5.2.1. With implementation of the management practices described in Subchapter 4.5.2.1, impacts would not be considered significant.

4.5.4.2 Air Force Installation Environmental Management Program

There are no Installation Environmental Management Programs in effect at the housing site or adjacent areas of Fort MacArthur Upper Reservation (other than the IRP). As described in Subchapter 4.5.2.2, no significant adverse impacts to Installation Environmental Management Programs would occur.

4.5.4.3 Installation Restoration Program

Several areas of the Upper Reservation were contaminated with hazardous substances because of past Army activities and operations at Fort MacArthur Upper Reservation. These areas require remediation in order to protect human health and environment. Remediation activities have been and are being conducted on the Upper Reservation as part of the IRP under the guidance of LAAFB. The IRP is a separate project, with separate funding from the proposed housing construction.

Four IRP sites were identified within the boundaries of the housing site. Additional investigations and remedial actions required at these sites are in progress. These sites will be formally closed under the IRP and state regulatory programs prior to occupancy of the new housing. As a result, no adverse impacts to ongoing IRP activities from the proposed housing, or to housing residents from these IRP sites, are anticipated.

In addition to the IRP sites within the boundaries of the proposed housing site, additional IRP sites are also located in the vicinity on the Upper Reservation. Because the sites are not on the housing site, construction of the housing would not affect ongoing remediation. The ongoing remediation of these sites is not anticipated to adversely affect the new residents. The construction contractor would verify with LAAFB IRP management before beginning construction that there are no ongoing remediation activities on adjacent sites that would interfere with scheduled construction activities.

4.5.4.4 Other Environmental Studies

Several other environmental studies have been conducted on the Upper Reservation, including a historical review and preliminary site assessment of the housing site (Fugro West, 1994). Some of the recommendations for remediation from these studies have been implemented under the IRP. Several additional recommendations for remediation were made in the site assessment for the housing site. Two recommendations would be implemented during construction of the proposed housing at the Fort MacArthur Upper Reservation housing site:

(1) Because of the highly mixed fill material in the three landfill areas, the Alma Street Landfill, the P.T. Field Landfill, and the circular area north of Bldg 982,

the fill material would be excavated. The fill would be properly disposed off-site. Clean fill from other areas on-site, or imported from off-site, would be used to fill these areas.

(2) The soil dumped in the area southwest of Merriam Drive would be excavated and removed for off-site recycling. Following removal, the area would be resampled to verify that all contaminated soil has been removed.

4.5.4.5 Asbestos

Construction of the housing would require demolition of the World War II-era buildings on the housing site. ACM are known to be present in these buildings. With implementation of SCAQMD Rule 1403 procedures, no significant adverse impacts associated with asbestos removal are expected.

4.5.4.6 Pesticide Use

There is no evidence of past pesticide storage at the housing site. Laboratory results of soil samples collected around Bldg 906, which is currently being used by LAUSD for the storage of pesticides, indicated non-detectable levels for the 44 pesticides analyzed. The proposed housing construction would not affect pesticide storage at this location, which is outside of the housing site.

Pesticide use in the new housing area would be limited to small quantities required for normal application. There would be no bulk storage of pesticides on the site, and no adverse impacts associated with pesticide use are expected.

4.5.4.7 Radon

Indoor radon sampling conducted in existing structures at the housing site indicated concentrations well below the action level for radon. There are no records of high radon levels in the area, and high radon levels are not expected to develop in the new housing units. No significant adverse impacts from radon are expected.

4.5.4.8 Lead

Demolition of the existing structures on the housing site would be required for construction of the new housing to proceed. These structures are known to contain lead-based paint. Demolition activities would be conducted as described in Subchapter 4.5.2.8. Disposal of lead piping and lead solder for piping connections would be handled as described in Subchapter 4.5.2.8. Therefore, significant adverse impacts from long-term exposure to high lead levels due to lead-based paint, lead piping and soldered connections are not expected.

4.5.4.9 Ordnance

All forms of ordnance previously located at the Upper Reservation have been removed, including ordnance that previously existed at the housing site. Records indicate that no disposal of ordnance occurred on the site (ESE, 1989). No explosives would be used during demolition of existing structures or for excavation. As described in Subchapter 4.5.2.9, no significant adverse impacts related to ordnance are expected.

4.5.4.10 Polychlorinated Biphenyls

The pole-mounted transformers on the housing site are the property of, and the responsibility of, LADWP. It is not known if these transformers contain PCBs, or if they are leaking. Leakage of PCBs, if present in the transformers, could contaminate surrounding soils and adversely impact public health. Prior to construction, the Air Force will verify that LADWP has conducted a PCB survey of these transformers. All of the transformers would be properly labeled for any PCB content. If any transformers are found to be leaking, LADWP would determine if any contamination has occurred as a result of the spill, and remove and properly dispose of the leaking transformer(s) and any PCB-contaminated material. An operations and maintenance plan will be developed as appropriate. No significant adverse impacts from exposure to PCBs are anticipated from these transformers as long as the operations and maintenance plan is implemented properly.

In the event that the transformers in the Battery Barlow-Saxton were found to have leaked, then cleanup would be included under the IRP. However, because the transformers in the battery are currently not leaking, and previous laboratory analysis indicated no PCB contamination, no significant adverse impacts from exposure to PCBs are expected from these transformers.

4.5.5 No Action Alternative

Under the No Action Alternative, no new housing would be constructed on the proposed housing sites. Potential adverse impacts to proposed new residents associated with unknown contaminated soils, asbestos, lead-based paints, or PCBs would not occur. Military personnel would occupy other available military housing and rent other housing in the area, and household hazardous wastes would be generated in similar quantities. Remediation activities on the Upper Reservation or DLA property would continue to be handled under the IRP. No significant adverse impacts are anticipated under the No Action Alternative.

4.5.6 Cumulative Impacts

There are no anticipated cumulative impacts to or from hazardous materials or hazardous waste management.

4.5.7 Unavoidable Adverse Impacts

The generation of household hazardous wastes by new housing residents is unavoidable. However, this would occur even under the No Action Alternative, and significant volumes of these household hazardous wastes are not expected to be generated. Potential adverse effects from asbestos and lead are unavoidable impacts associated with demolition of the existing structures on the proposed housing sites. However, with implementation of appropriate regulatory procedures and management practices, these adverse impacts are not expected to be significant. For these reasons, there are no significant unavoidable adverse impacts.

4.5.8 Mitigation Measures

No mitigation measures are required for the Proposed Action and any alternatives.

4.6 SOILS AND GEOLOGY

4.6.1 Significance Criteria

Any of the following impacts on the geologic environment, or of geologic hazards that would result from the Proposed Action or alternative, would be considered significant (OPR, 1992):

(1) Substantial alteration of previously undisturbed topography or ground surface relief, beyond that resulting from natural erosion and deposition;

(2) Disruptions, displacement, excavation, compaction, or overcovering of large amounts of soil;

(3) Grading activities that result in potentially unstable slope conditions, such as the construction of a cut slope exceeding a grade of 1.5 horizontal to 1 vertical, or cut slopes over 15 feet in height;

(4) General soil characteristics (such as shear strength, expansiveness, etc.) that require extensive foundation/engineering or slope stabilization measures; especially artificial fill materials;

(5) Geologic processes such as landslides or erosion are triggered or accelerated;

(6) Reactivation of an old landslide, or loss of load bearing strength of soils in the surrounding area occurs due to seismic activity;

(7) Unique geologic features (such as paleontologic resources) or geologic features of unusual scientific value for study or interpretation are disturbed or otherwise adversely affected; or

(8) Earthquake-induced ground shaking occurs which is capable of causing settlement or surface cracks at the site and attendant damage to structures, or of causing a substantial loss of use, or of exposing the public to a substantial increase in risk or injury.

4.6.2 White Point Navy Housing

4.6.2.1 Topography and Stratigraphy

Since the White Point housing area has been previously graded for housing construction, additional grading and earth moving activities are not anticipated. However, the adjacent 8-acre site would require grading, including cut and fill, to construct the proposed housing project. The exact amount of topographic alteration would be determined in the grading plan to be prepared prior to construction. Earthmoving would result in permanent topographic alteration. Topography alteration would be the minimum required for construction of the housing units and slope stabilization. Although topographic alteration is unavoidable, it is not considered a significant adverse impact.

No unique stratigraphic units or features are located at the housing area or adjacent 8-acre site. No significant adverse impacts to topography and stratigraphy are expected.

4.6.2.2 Regional Structure

The White Point housing area is possibly underlain by two contrasting structural zones. While no ground surface instability has been attributed to this change in subsurface structure to date, additional earthwork associated with the construction activities would need to take these features into consideration (see also discussion in Subchapter 4.6.2.5, Landslides).

Bedding planes at the adjacent 8-acre site are fractured, but contain no distinct jointing or fracturing patterns (Coleman Geotechnical, 1996). Bedding planes which dip at low inclinations from the southeast to the southwest, and strike generally neutral to the slope face, appear stable (Coleman Geotechnical, 1996). Grading activities to prepare the site for construction would include cutting of slopes.

4.6.2.3 Soils and Sediments

Although the naturally-occurring soils at the White Point housing area may be highly expansive, grading, placement of fill, and compaction of the soils and sediments at the site was conducted during previous housing construction. Additional grading and compaction during construction of the new housing would be conducted in accordance with standard industry procedures, in accordance with Air Force and local building code requirements. As a result, significant adverse impacts from expansive soils are not expected.

Expansive soils are known to underlie the additional 8-acre site. Expansive soils can lift and/or displace foundations, slabs, pavement, and underground utilities, causing damage and/or loss of facility use. Special earthwork and grading techniques, including soil removal and fill type, placement, and compaction techniques have been recommended in the geotechnical study completed for the additional 8-acre site (Coleman Geotechnical, 1996). These recommendations, or other alternate measures that would be equivalent or better, would be incorporated into project design and construction. For these reasons, significant adverse impacts from expansive soils are not anticipated.

Erosion of soils by wind or water can result in adverse environmental effects both on and off the site. Water erosion removes important topsoils and degrades the water quality of surface runoff. Wind erosion can reduce visibility by creating dust clouds, and can cause respiratory problems for individuals inhaling airborne particles. The potential for such impacts is increased during construction, as surface soils are disturbed by excavation and grading. Potential adverse impacts associated with construction-related soil erosion by storm water runoff are addressed in Chapter 4.7, and by wind erosion are addressed in Chapter 4.8. No additional adverse impacts associated with soil erosion are anticipated.

4.6.2.4 Faulting and Seismicity

Earthquake-related hazards, such as high ground accelerations and strong to intense ground motion, cannot be avoided in the southern California region. A moderate to great earthquake along one of the faults in the vicinity of the proposed housing site would result in strong to intense ground motions (0.56+ to 1.00+ g) at the site. Movement along the Cabrillo Fault might result in surface rupture at or near the proposed housing site. These ground motions can result in moderate to extensive structural damage to buildings, foundations, roadways, and above- and below-ground utilities. As noted during damage assessments following recent large earthquakes, existing buildings often do not withstand the high ground accelerations which may occur in the region. New housing units would incorporate earthquake-resistant designs in accordance with Zone 4 of the 1994 Uniform Building Code, as well as the Air Force building code, and local building and seismic codes. However, within typical economic constraints, it is not feasible to construct structures which will completely withstand the possible intense ground motions, and this is considered an unavoidable aspect of living in southern California. The Proposed Action will not result in any increase in exposure of residents to risk or injury from earthquake-induced groundshaking and therefore, any impacts from earthquakes.

4.6.2.5 Landslides

Surficial slumping has been noted in the vicinity of the White Point housing area and adjacent 8-acre site, which is located within a City of Los Angeles designated Slope Stability Study Area. No actual landslides or slope instability problems have been previously noted in the immediate area. Additional earthwork and grading activities to construct the new housing at this site would be required. Earthmoving activities could adversely affect existing slope stability in this area, especially since the site may be located beneath two contrasting structural zones. Adverse impacts would not be expected to occur from earthwork and grading required for construction of the new housing on or off-site slumping or landsliding.

4.6.2.6 Liquefaction

The potential for liquefaction at the housing area and adjacent 8-acre site are low. The Proposed Action will not result in any increase in exposure of residents to risk or injury from liquefaction, therefore, significant adverse impacts are not anticipated.

4.6.2.7 Subsidence

Soils at this housing area were previously compacted during construction of the existing housing units. Site grading and fill compaction for the housing area and additional 8-acre site would be conducted in accordance with Air Force and City of Los Angeles building codes, and the recommendations of the geotechnical investigation (Coleman Geotechnical, 1996). For these reasons, no adverse impacts from site subsidence or differential settlement are anticipated. Since the proposed housing site is outside of the area of regional subsidence, no significant adverse impacts resulting from subsidence are expected.

4.6.2.8 Non-renewable Mineral Resources

No known commercially extractable quantities of mineral resources directly underlie the housing area or adjacent 8-acre site, and no resources would be affected by construction of new housing. Therefore, no significant adverse effects to non-renewable mineral resources are anticipated.

4.6.2.9 Paleontologic Resources

Ground disturbing activities associated with construction have the potential to uncover fossil remains. Some of the geologic units underlying the White Point housing area and adjacent 8-acre site have a high paleontological sensitivity. The potential loss, damage, or destruction of any scientifically important fossils as a result of construction would be avoided by retaining a qualified paleontologist to monitor all ground disturbing activities in the underlying Altamira Shale and terrace deposits. No monitoring of earthmoving in recent soils, slopewash, or fill would be required. If fossils are uncovered during construction, earthmoving activities would be temporarily halted or redirected until the paleontologist has examined the find, determined its significance, salvaged the fossil, or made and implemented recommendations regarding additional mitigation. Any recovered specimens would be prepared, identified, and curated in a suitable repository, such as the Natural History Museum of Los Angeles County. A report summarizing findings of the monitoring, including an itemized inventory of recovered specimens and significance of the findings, would be prepared upon completion of the earthmoving activities, and submitted to the repository accepting the fossils. Therefore, this potential impact would not be considered significant.

4.6.3 Montgomery Navy Housing

4.6.3.1 Topography and Stratigraphy

Since the Montgomery housing site has been graded for previous housing construction, extensive additional grading or earthmoving activities are not anticipated. Therefore, no significant adverse impacts associated with topography or stratigraphy are anticipated.

4.6.3.2 Regional Structure

Bedding planes at the Montgomery housing area generally dip to the northeast. There would be minimal grading activities to prepare the site for construction, and no cutting of slopes is anticipated. No significant adverse impacts associated with regional structure are anticipated.

4.6.3.3 Soils and Sediments

Although the naturally-occurring soils at the Montgomery housing area may be highly expansive, grading, placement of fill, and compaction of the soils and sediments at the site was conducted during previous housing construction. Additional grading and compaction during construction of the new housing would be conducted in accordance with standard industry procedures, in accordance with Air Force and local building code requirements. As a result, significant adverse impacts from expansive soils are not expected.

The potential for erosion of soils by wind or water would be similar to that described for White Point (see Subchapter 4.6.2.3). No additional adverse impacts associated with soil erosion are anticipated for this alternative.

4.6.3.4 Faulting and Seismicity

As described for White Point (see Subchapter 4.6.2.4), a moderate to great earthquake along one of the faults in the vicinity would result in strong to intense ground motion (0.59+ to 1.00+ g) at the Montgomery housing area. Furthermore, movement along the nearby Palos Verdes Fault Zone might result in surface rupture at or near the housing area. These ground motions can result in moderate to extensive structural damage to buildings, foundations, roadways, and above- and below-ground utilities.

High ground accelerations or extended periods of intense ground shaking could result in structural damage and spilled petroleum products on the tank farm upslope of the Montgomery Navy housing area. New housing units would incorporate earthquake-resistant designs in accordance with Zone 4 of the 1994 Uniform Building Code, as well as the Air Force building code, and local building and seismic codes. However, since the tanks immediately upslope of the site are underground tanks, and the closest upslope aboveground tanks are approximately 0.5 mile away, significant encroachment of spilled petroleum products upon the site are not expected.

4.6.3.5 Landslides

Since the Montgomery housing site has been previously graded for construction of the existing housing, extensive additional grading or earthmoving activities are not anticipated. No cuts or alteration to the slope along the northern boundary of the site would be required. However, this slope is visibly eroding and depositing debris within the site. Although no alteration to this slope would be required to construct the proposed new housing units at this site, continued erosion of this slope may eventually affect its integrity and may result in a nuisance effect associated with the deposition of debris in the yards of the housing units. Appropriate engineering controls would be implemented to stabilize the slope. These measures may include repairing and/or maintaining all drains on the slope, repairing minor erosion damage with compacted fill and vegetation, and correcting any drainage conditions causing erosion. These measures would reduce the potential adverse erosion impact from this slope.

4.6.3.6 Liquefaction

The potential for liquefaction at the housing area is low. Therefore, significant adverse impacts to the new housing units from liquefaction are not anticipated.

4.6.3.7 Subsidence

Soils at this housing area were previously compacted during construction of the existing housing units. Additional grading and compaction would be part of the new housing construction at this site, and the potential for subsidence is low. Therefore, significant adverse impacts resulting from subsidence are not anticipated.

4.6.3.8 Non-renewable Mineral Resources

No known commercially extractable quantities of mineral resources directly underlie the housing area, and no resources would be affected by construction of new housing at this site. Therefore, no significant adverse effects to non-renewable mineral resources are anticipated.

4.6.3.9 Paleontologic Resources

Ground disturbing activities associated with construction have the potential to uncover fossil remains. Some of the geologic units underlying the Montgomery housing area have a high paleontological sensitivity. The potential loss, damage, or destruction of any scientifically important fossils as a result of construction would be avoided by retaining a paleontological monitor and practicing the procedures described in Subchapter 4.6.2.9.

4.6.4 Fort MacArthur Upper Reservation

4.6.4.1 Topography and Stratigraphy

Due to site layout and locally steep slopes, approximately 19 acres of the Fort MacArthur Upper Reservation housing site are considered buildable. Grading, including cut and fill, would be required to construct the proposed housing and associated access road improvements. The exact amount of topographic alteration would be determined in the grading plan to be prepared prior to construction. Earthmoving would result in permanent topographic alteration. However, topography of the Upper Reservation has been extensively altered in the past, and any additional alteration would be the minimum required for construction of the housing units and slope stabilization. Although topographic alteration is unavoidable, it is not considered a significant adverse impact.

No unique stratigraphic units or features are located at the Upper Reservation housing site. No significant adverse impacts to topography and stratigraphy are expected.

4.6.4.2 Regional Structure

Bedding planes at the Fort MacArthur Upper Reservation housing site are extensively deformed, but generally dip to the east, northeast, or southeast. Grading activities to prepare the housing site for construction would include cutting of slopes. Slopes cut to expose bedding planes dipping down the direction of the slope could adversely affect the stability of the entire slope.

4.6.4.3 Soils and Sediments

Expansive soils are known to underlie the Fort MacArthur Upper Reservation housing site. Expansive soils can lift and/or displace foundations, slabs, pavement, and underground utilities, causing damage and/or loss of facility use. Special earthwork and grading techniques, including soil removal and fill type, placement, and compaction techniques, have been recommended in the geotechnical study completed for the housing site (Fugro West, 1995). These recommendations, or other alternate measures that would be equivalent or better, would be incorporated into project design and construction management. For these reasons, significant adverse impacts from expansive soils are not anticipated.

The potential for erosion of soils by wind or water would be similar to that described for White Point (Subchapter 4.6.2.3). No additional adverse impacts associated with soil erosion are anticipated for this alternative.

4.6.4.4 Faulting and Seismicity

As described for White Point (Subchapter 4.6.2.4), a moderate to great earthquake along one of the faults in the vicinity would result in strong to intense ground motion (0.56+ to 1.00+ g) at the Fort MacArthur Upper Reservation. These ground motions can result in moderate to extensive structural damage to buildings, foundations, roadways, and above- and below-ground utilities. New housing units would incorporate earthquake-resistant designs in accordance with Zone 4 of the 1994 Uniform Building Code, as well as the Air Force building code, and local building and seismic codes.

4.6.4.5 Landslides

Slopes of highly plastic material, like those on the housing site, have the potential to creep or deform over time. As part of the geotechnical study, slopes in two areas of the housing site were evaluated for slope stability by computer modeling (Fugro West, 1995). The two areas evaluated were the southern portion of the Alma Street slope and the area along the existing Barlow-Saxton access road. Results of the computer modeling and slope stability analysis for these areas are summarized below. Computer modeling was not used to evaluate slope stability in other areas of the site. However, Fugro West (1995) concluded that these areas should meet or exceed safety factors when constructed in accordance with the standard grading and construction techniques as described in their study. Significant adverse impacts from slope stability at the housing site, except as noted for the areas described below, are not anticipated.

For the slope along Alma Street, computer modeling predicted that minimum safety requirements for gross stability would be met by implementing the recommended special grading and construction techniques (Fugro West, 1995). These recommended techniques, or alternate measures that are equivalent or better, would be incorporated into project design and construction. Based on the proposed slope regrading, significant adverse impacts from slope instability in the area along Alma Street are not expected.

Although no evidence of past slope instability was noted, subsurface and laboratory test data indicates that the current stability of the slope along the Barlow-Saxton access road does not meet typical regulatory requirements (Fugro West, 1995). On the basis of their analysis, Fugro West (1995) concluded that the proposed grading associated with the access road would not measurably increase or decrease the safety from existing site conditions. Since standard grading techniques may not be feasible in this area, several alternative recommendations for dealing with the stability of this slope were included in the geotechnical study. These alternative measures generally consist of: 1) building the proposed access road by performing the grading required to construct the road and accepting but reducing the risks and consequences of slope instability; and 2) stabilizing the slope by using structural measures (i.e., tiebacks or shear pins). Implementation of these engineering measures may reduce the potential for slope failure in this area. During project design, the Air Force and design contractor would select the most appropriate slope stabilization measures.

Other factors which could contribute to potential slope instability in this area include excess surface water on the slope face, changes to the slope geometry, rising groundwater levels, and earthquake events (Fugro West, 1995). General measures to reduce the potential for slope failure in the area were also recommended in the geotechnical study. These recommendations include notifying LADRP of the potential slope instability in this area, and requesting LADRP not: 1) overwater existing landscaping, 2) allow water to pond on the crest or flank of the slope, and 3) increase the load at the crest of the slope. In addition, surface water is recommended to be directed to concrete drainage structures, and discharged in a controlled manner. Any new landscaping on the slope north of the proposed access road was recommended to be deep-rooted, drought-tolerant vegetation. Implementation of these general recommendations would also reduce the potential for slope failure in this area.

Residential units on privately owned property near the base of the slope could be damaged if movement of soil or rock occurs. This is an existing hazard associated with the present slope stability. Engineering measures would be implemented during construction to protect residential properties from falling debris, and to prevent slope failures related to construction activities coinciding with natural events such as heavy rainfall or earthquakes. Construction of the access road would include slope stabilization measures. Although these measures would not eliminate potential slope instability that may exist on adjacent private property, they would reduce the probability for slope failure in this area. While the probability for slope failure would not be completely eliminated, significant adverse impacts to private residences caused by the proposed housing construction are not expected.

Any potential instability of the slope along the existing Barlow-Saxton Road would not affect the proposed housing units. The proposed housing would be located on the interior of the Fort MacArthur Upper Reservation housing site. Due to their distance from this slope, and the configuration of the housing site, it is unlikely that they would be affected by any naturally-occurring slope instability below Barlow-Saxton Road. The only proposed new construction which could be affected by instability in this slope would be the access road. If the Barlow-Saxton Road were damaged, the Alma Street access would be temporarily the only access to the site until the Barlow-Saxton Road was repaired. Since access to the site could still be maintained, significant adverse impacts are not expected.

4.6.4.6 Liquefaction

The potential for liquefaction at the housing site is low. No significant adverse impacts from liquefaction are expected.

4.6.4.7 Subsidence

Site grading and fill compaction would be conducted in accordance with Air Force and City of Los Angeles building codes, and the recommendations of the geotechnical investigation (Fugro West, 1995). The areas of historic fills and debris landfills, which were not compacted to engineering standards (see discussion in Subchapter 3.5.2) would be excavated and disposed. For these reasons, no adverse impacts from site subsidence or differential settlement are anticipated. Since the housing site is outside of the area of regional subsidence, no significant adverse impacts from subsidence are expected.

4.6.4.8 Non-renewable Mineral Resources

No commercially extractable quantities of mineral resources directly underlie or are in the immediate vicinity of the housing site, and no resources would be affected by construction of the proposed housing units. Therefore, no significant adverse impacts to non-renewable mineral resources are anticipated.

4.6.4.9 Paleontologic Resources

Ground disturbing activities associated with construction, including excavation, trenching, and grading, have the potential to uncover fossil remains. Some of the geologic units underlying the housing site have a high paleontological sensitivity. The potential loss, damage, or destruction of any scientifically important fossils as a result of construction would be avoided by retaining a qualified paleontological monitor and practicing the procedures described in Subchapter 4.6.2.9.

4.6.5 No Action Alternative

Under the No Action Alternative, the proposed housing would not be constructed. Existing geologic hazards, including expansive soils, seismicity, and landsliding, would continue to affect the alternative sites and existing structures at these sites. Proposed housing residents would occupy other housing in the region. Potential adverse impacts to paleontological resources associated with construction under any alternative would not occur under the No Action Alternative.

4.6.6 Cumulative Impacts

Ground disturbing activities required for construction of new facilities at White Point Housing, Montgomery Housing and Fort MacArthur Upper Reservation sites have the potential to damage or destroy paleontological resources. Loss of such resources would cumulatively add to losses occurring as a result of increased development in the region. However, with implementation of the best management practices described herein, impacts would be reduced below a significant level, and significant cumulative impacts are not expected. No other significant cumulative impacts to or from earth resources and geologic hazards are anticipated.

4.6.7 Unavoidable Adverse Impacts

A permanent alteration of topography would result from earthmoving required for construction of proposed housing at the White Point and Fort MacArthur Upper Reservation sites. This alteration is unavoidable given the site layout and number of proposed housing units. However, since the existing sites have been extensively altered due to past construction of military facilities, and a minimum of additional alteration is required, topographic alteration is not considered to be a potentially significant adverse impact at the sites.

At the Fort MacArthur Upper Reservation housing site, the existing slope instability in the area below the Barlow-Saxton Road is considered unavoidable. This area is privately owned, and outside of the boundaries of the housing site. Engineering controls would be implemented to prevent slope failure related to construction activities. However, the potential for damage to the road and proposed improvements from existing slope instability cannot be eliminated. The slope stabilization measures which would be incorporated in project design and construction would reduce the probability for slope failure in this area. Significant unavoidable impacts from slope instability at the Fort MacArthur Upper Reservation housing site are not expected.

4.6.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.7 WATER RESOURCES

4.7.1 Significance Criteria

The significance of water resource impacts is based on the regulations and concerns listed below. Impacts would be considered significant if any of the following conditions would occur as a result of the Proposed Action or an alternative:

(1) A discharge creating pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code;

(2) A discharge that degrades designated beneficial uses of water as set forth in the California Regional Water Quality Control Board (CRWQCB) Basin Plan;

(3) A change in the absorption rates, drainage patterns, or rate and amount of run-off that would in turn exceed the capacity of storm drain systems (OPR, 1992);

(4) Substantial alteration of flood water flow resulting in on-site flooding (OPR, 1992);

(5) Release of contaminants to the groundwater in such concentrations as to exceed maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 14, Chapter 15; and,

(6) A discharge which violates the Safe Drinking Water and Toxic Enforcement Act of 1986 which states, "No person in the course of doing business shall knowingly discharge or release a chemical known to the State to cause cancer or reproductive toxicity into water or onto or into land where such a chemical passes or probably will pass into any source of drinking water."

4.7.2 White Point Navy Housing

4.7.2.1 Surface Water

Construction Impacts

The major impacts associated with construction activities are temporary, lasting only as long as the construction phase. The impacts associated with the demolition of the existing housing (78 units) and the construction of up to 96 new housing units at the White Point Navy housing site (existing Navy housing area and adjacent 8 acres) are discussed below.

Construction of the proposed new housing at the White Point Navy housing site involves demolition of the existing units, clearing, grading, paving, utility installation, fencing, new roadways, and building construction. Movement of soil, and the exposure of disturbed soil to wind, rain, flooding, and stormwater runoff, increases the erosion potential. Construction-site wastes, such as accidental spills of materials, fuels, solvents, and concrete wash water, can be picked up by stormwater runoff and transported via the storm sewer to the Pacific Ocean. The introduction of polluted stormwater runoff to the ocean could cause an adverse impact to water quality in the near-shore area and beneficial uses.

The construction area is greater than five acres, which would require a National Pollutant Discharge Elimination System (NPDES) General Permit for stormwater discharge associated with construction activities. The General Stormwater Permit program is administered and enforced by the CRWQCB, Los Angeles Region. Objectives of the General Stormwater Permit are: (1) to identify pollutant sources that may affect the quality of stormwater discharges from the construction-site that are associated with construction activity; and (2) to identify, construct, and implement stormwater pollution preventive measures (best management practices [BMPs]) to reduce pollutants in stormwater discharges from the site, both during construction and after construction is completed.

As part of the General Stormwater Permit, the Air Force would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) and Monitoring Plan (MP) before commencing construction activities. The SWPPP would include the following: erosion and sediment control; non-stormwater management; post-construction stormwater management; waste management and disposal; maintenance, inspection, and repair; and employee training to perform inspections of the BMPs at the construction-site. The SWPPP would describe both structural and non-structural BMPs to minimize or eliminate the potential for spills and leakage of construction materials and the potential for erosion of disturbed areas by water and wind. The MP would evaluate the BMP's effectiveness to minimize pollutants that could be picked up by stormwater runoff. Implementation of the SWPPP and MP would prevent potential adverse water quality impacts associated with construction.

Operation Impacts

Stormwater runoff from the proposed residential housing area can potentially pick up and transport pollutants to the Pacific Ocean. Stormwater runoff from residential areas typically picks up pollutants such as oil and grease, fuel, landscape fertilizer, pesticides, and other materials used by homeowners. Numerous studies have been performed to determine pollutant concentrations in runoff from residential land uses. The Nationwide Urban Runoff Program (NURP) evaluated runoff data between 1978 and 1983 from sites in two cities. Average concentrations of constituents found in runoff from residential and commercial sites during this evaluation are shown on Table 4.7-1. These constituent concentrations are within the NURP recommended limits for this type of land use. The nuisance effects of oils and grease on the streets would be reduced by having the streets in the proposed housing cleaned in a manner and schedule consistent with that of the local community and City of Los Angeles requirements. The storm drain system on-site would be stenciled with prohibitive language/graphic icons in a manner consistent with current City of Los Angeles procedures to discourage illegal dumping. Therefore, anticipated levels of contaminants generated at the housing site that would be picked up and transported by stormwater runoff are expected to be insignificant.

Table 4.7-1

Water Quality Characteristics of Runoff from Residential and Commercial Areas

Constituent	Units	Average Residential or Commercial Site Concentration	NURP Recommendations for Load Estimates
TSS	mg/L	239	180 - 548
BOD	mg/L	12	12 - 19
COD	mg/L	94	82 - 178
Total P	mg/L	0.5	0.42 - 0.88
Sol. P	mg/L	0.15	0.15 - 0.28
TKN	mg/L	2.3	1.90 - 4.18
$NO_2 + NO_3$ (N)	mg/L	1.4	0.86 - 2.2
Total Cu	µg/L	53	43 - 118
Total Pb	µg/L	238	182 - 443
Total Zn	µg/L	353	202 - 633

Source:	ASCE and WEF, 1992	mg/L	milligrams per liter
NURP	Nationwide Urban Runoff Program	µg/L	micrograms per liter
TSS	total suspended solids	TKN	total Kjeldahl nitrogen
BOD	biochemical oxygen demand	$NO_2 + NO_3$ (N)	nitrite-nitrate as nitrogen
COD	chemical oxygen demand	Cu	copper
P	phosphorus	Pb	lead
Sol.	soluble	Zn	zinc

4.7.2.2 Surface Drainage

Construction Impacts

Construction activities such as paving, and house construction will increase the amount of impervious ground surface currently existing at the site. Therefore, the volume of runoff from the site will increase from the existing volume. The implementation of BMPs set forth in the SWPPP for the construction-site prior to commencement of construction activities would minimize or eliminate adverse affects associated with surface runoff. No adverse impacts to surface drainage are expected as a result of construction.

Operation Impacts

Development of housing on the White Point site would result in an increase in the amount of impervious ground surface of approximately 3 acres. Therefore, an increase in surface drainage is expected. The increase in surface drainage is not expected to exceed the capacity of existing drainage systems. The level of contamination generated at the site is expected to be insignificant. Therefore, the potential for an accidental release of contaminated materials that could be transported by runoff via the storm sewer to the Pacific Ocean is not considered significant.

4.7.2.3 Groundwater

Construction Impacts

During construction activities there would be a potential for accidental spills and leakage of construction related materials, such as fuels, oils, solvents, and concrete wash water, to the ground. However, with the implementation of BMPs listed in the SWPPP to reduce and/or eliminate pollutant sources, no adverse impacts to groundwater resources are anticipated during construction.

Operation Impacts

The amount of impervious ground surface would increase with construction of the new housing at the White Point Navy housing site. This site is not currently used for ground water recharge. Therefore, no impacts to groundwater resources are expected to occur from this alternative.

4.7.3 Montgomery Navy Housing

4.7.3.1 Surface Water

Construction Impacts

The major impacts associated with construction activities are usually temporary, lasting only as long as the construction phase. The impacts associated with the demolition of existing housing (91 units) and the construction of up to 96 new housing units at the Montgomery Navy housing site would be the same as described in Subchapter 4.7.2.1. Implementation of the SWPPP and MP would prevent adverse water quality impacts associated with construction.

Operation Impacts

As described in Subchapter 4.7.2.1, the anticipated levels of contaminants that would be generated by the proposed new housing at the Montgomery Navy housing site are expected to be insignificant.

4.7.3.2 Surface Drainage

Construction Impacts

As described in Subchapter 4.7.2.2, no adverse impacts to surface drainage are expected as a result of construction.

Operation Impacts

This alternative would not result in a change in the amount of impervious ground surface at the site. Therefore, no increase in surface drainage is expected. As discussed in

Subchapter 4.7.2.2, the potential for an accidental release that could be transported by runoff via the storm sewer to the Pacific Ocean is not considered significant.

4.7.3.3 Groundwater

Construction Impacts

As described in Subchapter 4.7.2.3, no adverse impacts to groundwater resources are anticipated during construction.

Operation Impacts

As described in Subchapter 4.7.2.3, no impacts to groundwater resources are expected to occur from this alternative.

4.7.4 Fort MacArthur Upper Reservation

4.7.4.1 Surface Water

Construction Impacts

Impacts to surface water during construction would be the same as described in Subchapter 4.7.2.1. Implementation of the SWPPP and MP would prevent adverse water quality impacts associated with construction.

Operation Impacts

As described in Subchapter 4.7.2.1, the anticipated levels of contaminants that would be generated by the proposed new housing at the Fort MacArthur Upper Reservation housing site are expected to be insignificant.

4.7.4.2 Surface Drainage

Construction Impacts

As described in Subchapter 4.7.2.2, no adverse impacts to surface drainage are expected as a result of construction.

Operation Impacts

There would be a slight increase in the volume of stormwater runoff from the housing site as a result of the increase in impervious ground surface. The increase in impervious ground surface would be approximately ten acres, which is about 55 percent of the existing non-impervious ground surface at the site. The increased runoff would drain to the existing stormwater system, which is more than adequate to accommodate this increase in runoff. Overflow of the storm sewer would not be expected.

As described in Subchapter 4.7.2.2, the potential for an accidental release that could be picked up by stormwater runoff and transported off-site via the storm sewer is not considered significant.

4.7.4.3 Groundwater

Construction Impacts

Due to the highly impervious structure of the underlying geologic formation, the lack of groundwater under the housing site, and implementation of BMPs from the SWPPP, no adverse impacts to groundwater resources are expected during construction.

Operation Impacts

Construction of the proposed housing at the site would create an overall increase in the amount of impervious ground surface, which in turn would reduce the amount of ground surface available for water recharge. However, because the housing site is underlain with a highly impervious geologic formation, the Monterey Shale, no water recharge occurs at the site. Therefore, no adverse impacts to groundwater resources are expected during operation.

4.7.5 No Action Alternative

Under the No Action Alternative, the potential sites would remain in their present state. The impacts from construction and residential use would not occur. Therefore, under the No Action Alternative, there would not be any adverse impacts on existing water resources.

4.7.6 Cumulative Impacts

No significant cumulative impacts to water resources resulting from the proposed housing at any of the proposed housing sites are expected.

4.7.7 Unavoidable Adverse Impacts

No significant unavoidable adverse impacts on water resources from the proposed housing at any of the proposed housing sites are expected.

4.7.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.8 AIR QUALITY

4.8.1 Significance Criteria

Criteria for determining the significance of air quality impacts are based on federal, state, and local pollution standards and regulations. Impacts on air quality are considered to be significant if the project emissions would: (1) exceed the SCAQMD's established daily levels of significance; (2) increase ambient air pollutant levels from below to above the National Ambient Air Quality Standards (NAAQS) and/or the California Ambient Air Quality Standards (CAAQS); or (3) contribute measurably to an existing or projected air quality violation.

Potentially significant air quality impacts in the South Coast Air Basin (Basin) are evaluated by criteria in the SCAQMD California Environmental Quality Act Air Quality Handbook (SCAQMD, 1993). The handbook identifies measurable emissions, including applicable emission factors and quantifiable mitigation measures. The air quality impact analyses included in this evaluation are based on SCAQMD daily levels of significance shown in Table 4.8-1. These daily threshold levels for construction and operational phases were used in determining whether the Proposed Action or an alternative and cumulative projects would have the potential to cause a significant adverse impact on air quality.

Table 4.8-1

SCAQMD Air Quality Impact Significance Thresholds

	Air Contaminant Emission Rate (lb/day)					
Project Phase	**CO**	**ROG**	**NO_X**	**SO_X**	**PM_{10}**	**Lead[a]**
Construction	550	75	100	150	150	3
Operation	550	55	55	150	150	3

Source: SCAQMD, 1993a except as noted
a SCAQMD, 1987
lb/day pounds per day; NO_X nitrogen oxides
CO carbon monoxide; SO_X sulfur oxides
ROG reactive organic gases; PM_{10} particulate matter less than 10 microns in diameter

4.8.2 White Point Navy Housing

4.8.2.1 Construction Impacts

Construction-related activities in the existing Navy housing area and adjacent 8 acres would take place over a period of approximately 20 months. Figure 2.5-3 is the anticipated construction plan, showing 6 months for site clearing and demolition of existing housing, 12 months for housing construction, and 2 months for roadwork and landscaping.

Extensive demolition activities would take place during the site preparation period. Approximately 103,520 square feet of one- and two-story housing would be removed from the site. Asbestos-containing materials (ACM) have been identified (see Subchapter 4.5.2.3) in the existing structures that would be demolished. ACM would be removed and disposed at a rate of 0.08 pounds per day along with ancillary debris for disposal. Asbestos removal is subject to SCAQMD Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities) and is discussed in Subchapter 3.8.2.4. With implementation of SCAQMD Rule 1403 procedures, significant adverse impacts associated with asbestos emissions would not be expected.

Construction-related emission sources are divided into two categories: stationary and mobile sources. Stationary source emissions would be generated from on-site construction equipment. Although these machines are often analyzed as mobile sources, they would be restricted to the proposed housing site, which is considered a point source for this analysis. Mobile source emissions would occur from construction worker vehicles, and the truck transport of materials within, to, and from the site. Fugitive dust air emissions would also be generated from construction activities.

Projected emissions from construction-related equipment were calculated by estimating the number and type of equipment to be used per day, and their hourly operation. Emission factors, daily hours of operation, and resultant emissions generated during each construction phase are provided in Appendix E. Overall construction activities are assumed to take place within an eight-hour day, five days per week.

Mobile exhaust emission sources were calculated for both on-site and off-site activities. Off-site mobile sources are defined as construction worker vehicles, trucks transporting materials to and from the proposed housing site, and pickup trucks used on a daily basis. The worst-case assumption of one occupant per worker vehicle was used for the impact analysis (i.e., no construction worker carpooling). It is assumed that the pickup trucks would remain on-site with an estimated total daily travel distance each of three miles. The total daily estimated travel for single-occupant worker automobiles and transport trucks is 50 miles. Mobile source emission factors and calculations are provided in Appendix E. No adverse impacts to nearby intersections or roadways were found from construction-related mobile sources in the transportation analysis for the Proposed Action (see Chapter 4.2). Therefore, a microscale carbon monoxide analysis was not conducted.

Fugitive dust or PM_{10} emissions would be generated from both on and off road vehicular travel, and from soil disturbance during equipment operation. Off-site PM_{10} emissions were calculated for vehicles traveling on paved roads. On-site vehicular PM_{10} emissions were calculated for vehicles traveling on unpaved roads, and from earthmoving equipment including backhoes, front-end loaders, trenchers, and motor graders.

Site preparation, roadwork, and housing construction activities are anticipated to occur consecutively. Construction vehicles and equipment used on-site would be maintained in proper tune, and best available control technology (BACT) would be used on construction equipment, including timing retardation. Estimated daily equipment exhaust emissions from each of the construction phases are listed in Table 4.8-2. Table 4.8-3 shows the estimated daily PM_{10} emissions generated during proposed construction activities.

Table 4.8-2

Estimated Daily Exhaust Emissions from Construction-Related Activities at White Point Navy Housing

Activity	Air Contaminant Emissions (lb/day)				
	CO	**ROG**	**NO_X**	**SO_X**	**PM_{10}**
Site Preparation	96.44	16.17	79.70	6.96	7.59
Demolition	75.30	11.47	38.93	2.08	3.72
Housing Construction	93.23	16.02	30.32	1.60	3.03
Road Construction	62.90	10.85	40.76	3.11	3.44

Note: Less than one pound of lead emissions would be generated from mobile sources during the construction period for each phase.

lb/day	pounds per day	NO_X	nitrogen oxides
CO	carbon monoxide	SO_X	sulfur oxides
ROG	reactive organic gases	PM_{10}	particulate matter less than 10 microns in diameter

Table 4.8-3

Estimated Daily PM_{10} Emissions from Construction-Related Activities at White Point Navy Housing

Activity	Construction Activity PM_{10} Emissions (lb/day)			
	Construction Worker Vehicles	**Earthmoving Equipment**[a]	**Trucks On-site/Off-site**[b]	**Total**[c]
Site Preparation	7.20	6.45	35.60	138.25
Demolition	7.20	6.45	36.00	139.65
Housing Construction	7.20	4.30	24.00	95.50
Road Construction	9.00	8.60	15.20	70.80

[a] Backhoe, compactor, front end loader, grader and scraper.
[b] Dump truck, flat bed truck, heavy maintenance truck, pick up truck and water truck.
[c] Total reduced by 34 percent due to on-site watering for dust control.

The PM_{10} emissions listed in Table 4.8-3 result from dust generated primarily by on-site vehicle travel and operation of earthmoving equipment. These sources represent up to 97 percent of the total PM_{10} emissions generated during the construction phase activities. The active construction area would be watered twice per day. These emissions were calculated taking into account a 34 percent fugitive dust reduction achieved by active on-site watering. The equipment fleet includes a water truck which would be used for on-site watering.

In addition to air pollutant emissions from the operation of construction equipment and the resulting dust generation, construction of the MFH would also result in emissions from the consumption of electricity. It is estimated that 300 KWH-day of electricity would be used throughout the construction period. Table 4.8-4 shows emissions associated with the consumption of electricity.

Table 4.8-4

Estimated Daily Emissions from Consumption of Electricity During Construction

	CO	**ROG**	**NO_X**	**SO_X**	**PM_{10}**
Consumption of Electricity (lb/day)	0.6	0.03	3.45	0.36	0.12

lb/day pounds per day; NO_X nitrogen oxides
CO carbon monoxide; SO_X sulfur oxides
ROG reactive organic gases; PM_{10} particulate matter less than 10 microns in diameter

Estimated daily air contaminant emissions from construction-related activities at White Point are summarized in Table 4.8-5 for comparison with SCAQMD impact significance thresholds. For all of the construction period, the worst-case day air contaminant emissions would not exceed the SCAQMD threshold criteria for any pollutant.

Table 4.8-5

Comparison of Construction-Related Air Contaminant Emissions at White Point Navy Housing to SCAQMD Criteria Pollutant Significance Threshold Levels

	Air Contaminant Emissions (lb/day)				
Activity	**CO**	**ROG**	**NO_X**	**SO_X**	**PM_{10}**[a]
SCAQMD Threshold Level	550	75	100	150	150
Site Preparation	97	16	83	7	146
Demolition	76	11	42	2	144
Road Construction	94	16	34	2	99
Housing Construction	64	11	44	3	74

a PM_{10} emissions totals include combined emissions from exhaust and other construction-related activities.
lb/day pounds per day; NO_X nitrogen oxides
CO carbon monoxide; SO_X sulfur oxides
ROG reactive organic gases; PM_{10} particulate matter less than 10 microns in diameter

4.8.2.2 Operational Impacts

Potential air quality impacts that would result during occupancy of the new MFH at the White Point site include emissions from energy uses associated with the additional 18 households and associated mobile sources. Air contaminant emissions were calculated using the SCAQMD MAAQI computer program. This program estimates air emissions generated through consumption of energy (natural gas and electricity) according to housing type, location, and planned year of operation. Mobile source exhaust emissions are based on the number of vehicles by trip type (work, shopping, other), miles driven, and average speed per hour. In addition to PM_{10} emissions from vehicle exhaust and tire dust accounted for in the MAAQI program, PM_{10} emissions from vehicular travel along paved roads were calculated based on the program's forecast of daily vehicular miles traveled.

Air emissions that would result from operation (i.e., occupancy) are listed in Table 4.8-6. With or without ridesharing, the estimated emissions during operation would be below SCAQMD significance levels for all pollutant categories. PM_{10} emissions from mobile sources (i.e., vehicles associated with the housing area) are composed of vehicle exhaust emissions, tire dust and fugitive dust associated with travel on paved roadways. The fugitive dust emissions from project-related vehicular movement on roadways would represent 98.7 percent of operational PM_{10} emissions. The ridesharing program is an ongoing requirement for LAAFB personnel. When ridesharing is considered at the LAAFB established rate of 1.67 workers per vehicle and a rate of 1.2 for non-workers (i.e., spouses), an average ridership value (AVR) of 1.529 results. When this AVR is applied to projected daily trips, PM_{10} emissions would be further reduced. It is anticipated that local air quality would remain unaltered.

4.8.2.3 Consistency with SCAQMD AQMP

Development of new Air Force housing in place of existing Navy housing at White Point would represent a replacement of the existing population (with an increase of 70 persons). This would not be considered population growth, since the current occupants of this housing area are part of the SCAG growth management plan. Therefore, this would be consistent with the 1994 Air Quality Management Plan (AQMP).

The increase of 70 persons represents a population growth of 0.34 percent in the ROI (see Chapters 3.12 and 4.12), which is below the significance criteria of three percent growth used by SCAG. Therefore, it is consistent with the 1994 AQMP.

4.8.2.4 EPA Conformity

A Clean Air Act Conformity Analysis prepared for the Proposed Action is included in Appendix E and summarized herein. Table 4.8-7 shows the total direct and indirect annual emissions of nitrogen oxides, ozone precursors (hydrocarbons and nitrogen oxides), CO and PM_{10} that would result from construction and operation of the new MFH at White Point in comparison to the applicable EPA conformity de minimis threshold levels (Table 3.8-2). As shown on Table 4.8-7, emissions are below the de

Table 4.8-6

Comparison of Operational Phase Air Contaminant Emissions at White Point Navy Housing to SCAQMD Criteria Pollutant Significance Threshold Levels

Source	Air Contaminant Emissions (lb/day)				
	CO	ROG	NO_X	SO_X	PM_{10}
SCAQMD Threshold Level	550	55	55	150	150
Without Ridesharing					
Energy Use	0.13	0.02	0.60	0.03	0.01
Mobile[a]					
Vehicle Exhaust	18.79	1.74	2.49	0.29	0.52
Roadway Travel	--	--	--	--	39.72
Total Unmitigated Emissions	18.92	1.76	3.09	0.32	40.25
With Ridesharing					
Energy Use	0.13	0.02	0.60	0.03	0.01
Mobile[b]					
Vehicle Exhaust	12.29	1.13	1.63	0.19	0.34
Roadway Travel	--	--	--	--	25.97
Total Mitigated Emissions	12.42	1.15	2.23	0.22	26.32

Note: Less than one pound of lead emissions would be generated per day during operation.

a Emissions from vehicle travel do not take ridesharing into account.

b Reflects average vehicle ridership (AVR) of 1.529, which represents 70 percent work-related trips at 1.67 persons per vehicle and 30 percent at 1.2 persons per vehicle.

lb/day pounds per day
CO carbon monoxide
ROG reactive organic gases
NOx nitrogen oxides
SOx sulfur oxides
PM_{10} particulate matter less than 10 microns in diameter

Table 4.8-7

Comparison of Annual Air Pollutant Emissions at White Point Navy Housing to Applicable EPA Conformity De Minimis Threshold Levels

Activity	No. of Months	Air Contaminant (tons)[a]			
		NO_X	ROG	CO	PM_{10}
Construction					
Site Preparation	4	4.08	0.68	3.49	6.13
Demolition	2	1.59	0.24	0.89	3.01
Housing Construction	12	11.26	1.93	4.05	11.84
Road Construction	2	1.34	0.22	0.92	1.56
12-month Total, Construction[b]	20	11.58	1.96	6.19	14.02
Operation					
Emissions Without Ridesharing		0.37	0.21	2.28	4.85
Emissions With Ridesharing		0.27	0.14	1.50	3.17
Applicable EPA Conformity De Minimis Threshold Level		100	10	100	70

a Daily emissions were multiplied by 21 days per year to determine monthly emissions, then multiplied by the number of months duration for each phase.

b Total reflects maximum emissions that could occur over a 12-month period.

minimis levels for all applicable nonattainment pollutants. Since potential air pollutant emissions associated with the proposed action meet both de minimis and regional significance criteria requirements, this federal action is exempt from further conformity requirements specified by the USEPA Final General Conformity Rule.

4.8.3 Montgomery Navy Housing

4.8.3.1 Construction Impacts

Construction-related activities would occur over a period of 20 months on the 25-acre site (Figure 2.5-3). Extensive demolition activities would be required at the Montgomery site, which would occur during site preparation. During this period, 8,900 cubic yards of housing material would be removed and disposed from the site. The demolition operations would result in a minor increase in all the pollutant categories due to a higher level of trucking operations for debris transport. Asbestos material has been identified in the existing structures at the Montgomery site, and an estimated 0.07 pounds of asbestos material would be removed daily along with the ancillary debris for disposal. Asbestos removal is subject to SCAQMD Rule 1403. With implementation of SCAQMD Rule 1403 procedures, significant adverse impacts associated with asbestos emissions would not be expected.

Estimated daily construction-related emissions that would be generated at the Montgomery site are shown in Tables 4.8-2 through 4.8-5. For the entire construction period, the worst-case day air emissions would not exceed the SCAQMD threshold criteria for all pollutants.

4.8.3.2 Operational Impacts

The housing units at the Montgomery Navy housing area are currently partially occupied. The Air Force would construct up to 96 new housing units in place of 91 existing Navy housing units. Since Air Force residents would replace the current Navy residents, operational activities would not substantially increase at this site. Operational emissions from the additional five households and associated mobile sources will be minimal, as presented in Table 4.8-8 and compared with SCAQMD criteria pollutant significance threshold levels. Local air quality would remain unaltered.

4.8.3.3 Consistency with SCAQMD AQMP

Development of new Air Force housing in place of existing Navy housing at the Montgomery site would represent a replacement of the existing population (with an increase of 20 persons). This would not be considered population growth, since the current occupants of this housing area are part of the SCAG growth management plan. Therefore, this would be consistent with the 1994 AQMP.

The increase of 20 persons represents a negligible population growth (see Chapters 3.12 and 4.12), which is below the significance criteria of three percent growth used by SCAG. Therefore, it is consistent with the 1994 AQMP.

Table 4.8-8

Comparison of Operational Phase Air Contaminant Emissions at Montgomery Navy Housing to SCAQMD Criteria Pollutant Significance Threshold Levels

Source	Air Contaminant (lb/day)				
	CO	ROG	NO_X	SO_X	PM_{10}
SCAQMD Threshold Level	550	55	55	150	150
Without Ridesharing					
Energy Use	0.03	0.01	0.14	0.01	0.01
Mobile[a]					
Vehicle Exhaust	4.05	0.39	0.53	0.06	0.11
Roadway Travel	--	--	--	--	8.33
Total Unmitigated Emissions	4.08	0.40	0.67	0.07	8.45
With Ridesharing					
Energy Use	0.03	0.01	0.14	0.01	0.01
Mobile[b]					
Vehicle Exhaust	2.65	0.25	0.34	0.04	0.07
Roadway Travel	--	--	--	--	5.45
Total Mitigated Emissions	2.68	0.26	0.48	0.05	0.08

Note: Less than one pound of lead emissions would be generated per day during operation.

a Emissions from vehicle travel do not take ridesharing into account.

b Reflects average vehicle ridership (AVR) of 1.529, which represents 70 percent work-related trips at 1.67 persons per vehicle and 30 percent at 1.2 persons per vehicle.

lb/day	pounds per day	NOx	nitrogen oxides
CO	carbon monoxide	SOx	sulfur oxides
ROG	reactive organic gases	PM_{10}	particulate matter less than 10 microns in diameter

4.8.3.4 EPA Conformity

As shown on Table 4.8-7, emissions associated with the Montgomery housing alternative would be below EPA Conformity de minimis threshold levels for all applicable nonattainment pollutants (see Subchapter 4.8.2.4).

4.8.4 Fort MacArthur Upper Reservation

4.8.4.1 Construction Impacts

Construction-related activities would occur over a period of 20 months, and would have the same construction schedule as described for White Point (Figure 2.5-3). The site preparation, housing construction and roadwork would result in the same daily air emissions as estimated for White Point. However, demolition activities would be less. During this period, 3,400 cubic yards of one-story buildings would be removed and disposed from the site. Asbestos material has been identified in the buildings to be demolished, and an estimated 0.05 pounds of asbestos material would be removed daily along with the ancillary debris for disposal. With implementation of SCAQMD Rule

1403 procedures, significant adverse impacts associated with asbestos emissions would not be expected.

Estimated daily construction-related emissions that would be generated during construction at the Fort MacArthur Upper Reservation site are the same as shown in Table 4.8-5. As shown on this table, the worst-case day air emissions would not exceed the SCAQMD threshold criteria for all pollutants.

4.8.4.2 Operational Impacts

At Fort MacArthur Upper Reservation, unlike at White Point and Montgomery housing sites, Air Force personnel would not be replacing existing residents. Ninety-six new households would be added to the local population and air emissions that would result from operation are presented in Table 4.8-9. Without ridesharing, project operational emissions, with the exception of PM_{10} emissions, would be below the SCAQMD significance levels. With ridesharing at the LAAFB established rates, PM_{10} emissions would be reduced to below the corresponding SCAQMD significance level.

4.8.4.3 Consistency with SCAQMD AQMP

The forecast population from the proposed housing at the Fort MacArthur Upper Reservation is 373. This is a population growth of 1.8 percent in the ROI and below the significance criteria of three percent growth used by SCAG. Therefore, it is consistent with the 1994 AQMP.

4.8.4.4 EPA Conformity

As shown on Tables 4.8-7 and 4.8-9, emissions associated with the Fort MacArthur Upper Reservation housing alternative would be below EPA Conformity de minimis threshold levels for all applicable nonattainment pollutants (see Subchapter 4.8.2.4).

4.8.5 No Action Alternative

The No Action Alternative assumes that no construction or additional operational activity would take place at the proposed housing sites, and the local air quality would remain unaltered. No significant adverse impacts from the No Action Alternative would occur.

4.8.6 Cumulative Impacts

Construction of any other project(s) in the vicinity would result in construction emissions. If these emissions occurred in the same time frame as project construction activities, this would result in a temporarily worsening of cumulative NO_X and PM_{10} emissions, and potentially result in the threshold being exceeded. Other criteria air contaminants may also cumulatively exceed the threshold levels as a result of several construction projects occurring concurrently in the same local area. At this time, no planned or reasonably foreseeable future actions have been identified in the vicinity of the proposed housing sites at this time.

Table 4.8-9

Comparison of Operational Phase Air Contaminant Emissions at Fort MacArthur Upper Reservation to SCAQMD Criteria Pollutant Significance Threshold Levels

Source	Air Contaminant Emissions (lb/day)				
	CO	ROG	NO_X	SO_X	PM_{10}
SCAQMD Threshold Level	550	55	55	150	150
Without Ridesharing					
Energy Use	0.71	0.13	3.37	0.18	0.06
Mobile[a]					
Vehicle Exhaust	105.0	9.7	13.9	1.6	2.9
Roadway Travel	--	--	--	--	221.94
Total Unmitigated Emissions	105.71	9.83	17.27	1.78	224.90
With Ridesharing					
Energy Use	0.71	0.13	3.37	0.18	0.06
Mobile[b]					
Vehicle Exhaust	68.67	6.34	9.09	1.05	1.90
Roadway Travel	--	--	--	--	145.15
Total Mitigated Emissions	69.38	6.47	12.46	1.23	147.11

Note: Less than one pound of lead emissions would be generated per day during operation.

a Emissions from vehicle travel do not take ridesharing into account.

b Reflects average vehicle ridership (AVR) of 1.529, which represents 70 percent work-related trips at 1.67 persons per vehicle and 30 percent at 1.2 persons per vehicle.

lb/day	pounds per day	NOx	nitrogen oxides
CO	carbon monoxide	SOx	sulfur oxides
ROG	reactive organic gases	PM_{10}	particulate matter less than 10 microns in diameter

The combination of air pollutant emissions and potential emissions from the Proposed Action and a future related project may result in significant operational impacts for some air contaminants on a cumulative basis within the project region. However, it should be noted that any future projects would potentially contribute to cumulative adverse air quality impacts, regardless of implementation of the Proposed Action.

4.8.7 Unavoidable Adverse Impacts

Short-term, unavoidable impacts to local air quality would result from construction activity on a worst-case day basis. These impacts would be temporary and would vary, depending on the continued daily operation of construction equipment. They would cease at the end of each construction activity. These impacts are not significant and recommended mitigation measures would reduce the potential adverse impact.

4.8.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.9 NOISE

The environmental impact analysis of noise includes an evaluation of the change in the noise environment that may occur as a result of a Proposed Action, and the effects of noise on the daily activities of the local population. These effects include potential annoyance, speech interference, sleep disturbance, hearing loss, health effects, and land use impacts. This analysis estimates the extent and magnitude of noise levels that could be generated by the Proposed Action at the alternative housing sites. The predicted noise levels are then assessed. The metrics used to evaluate noise are the day-night average sound level (DNL) and the energy-equivalent sound level (L_{eq}).

Methods used to quantify the effects of noise, such as those listed above, have undergone extensive scientific development during the past several decades. The most reliable measures at present are noise-induced hearing loss and annoyance. Extra-auditory effects (those not directly related to hearing capability) are also important, although they are not as well understood. The current scientific consensus is that "evidence from available research reports is suggestive, but it does not provide definitive answers to the question of health effects, other than to the auditory system, of long-term exposure to noise" (NAS, 1981).

4.9.1 Significance Criteria

According to the Air Force, Federal Aviation Administration (FAA), and HUD criteria, residential units and other noise-sensitive land uses are: "clearly unacceptable" in areas where the noise exposure exceeds a DNL of 75 for the A-weighted decibel sound level (dBA); "normally unacceptable" in regions exposed between the DNL of 65 to 75 dBA; and "normally acceptable" in areas exposed to noise of a DNL of 65 dBA or less. Noise policies used by agencies having jurisdiction over the Proposed Action are briefly summarized below.

4.9.1.1 Federal Regulations

The Federal Highway Administration (FHWA) has established noise standards for traffic noise on federal highways (23 CFR Part 772). When these standards or "noise abatement criteria" (NAC) are approached or exceeded, noise impact occurs. The NAC for most sensitive receptors (including parks, residences, schools, churches, libraries, and hospitals) is an L_{eq} of 67 dBA at the receiver location or the receiver property line.

4.9.1.2 Local Regulations

The City of Los Angeles Environmental Impact Report Manual for Private Projects provides standards to evaluate the compatibility between land use and noise (City of Los Angeles, 1975). The guidelines indicate that residential land use and schools exposed to a Community Noise Equivalent Level (CNEL) less than 65 dBA are considered to be "normally acceptable." The cities of Rancho Palos Verdes and Rolling Hills Estates have also identified this CNEL criterion.

The City of Los Angeles Noise Ordinance has noise limits for construction activities (City of Los Angeles, 1982). According to this ordinance (Los Angeles Municipal Code [LAMC] Subchapter 112) "no person shall operate or cause to be operated any machinery, equipment, or other mechanical devices in such a manner as to create any noise which would cause the noise level on the premises of any other occupied property, to exceed the ambient noise level by more than 5 dBA" (LAMC, Subchapter 112.04).

Subchapter 112.05 of the LAMC states that construction and industrial machinery shall not exceed a maximum of 75 dBA at a distance of 50 feet except where compliance is technically infeasible: "the burden for proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of this chapter. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or technique during the operation of the equipment."

In addition, LAMC Subchapter 41.4 restricts construction activity during specific hours and days. According to this code, no person shall perform any construction or repair work that makes loud noises that disturb persons occupying sleeping quarters in any place of residence between the hours of 9:00 p.m. of any one day and 7:00 a.m. of the following day. Furthermore, the code prohibits any person other than an individual homeowner engaged in the repair or construction of his single-family dwelling from performing any construction or repair work on land occupied by residential buildings, or within 500 feet of land so occupied, before 8:00 a.m. or after 6:00 p.m. on any Saturday, nor at any time on Sunday.

4.9.1.3 Other Criteria

In addition to the above policies, noise impact also has to be assessed in terms of perceived change in existing sound levels. A change of 3 decibels (dB) for a given type of sound is considered noticeable, and a change of 10 dB represents a doubling of perceived noise and could result in sustained complaints. Increases in noise level by 3 dB or more are considered to be adverse. In addition, any new type of sound which is of a disturbing character, such as a hum or a tone, may be considered adverse. These policies are used in this analysis to identify noise impacts at noise sensitive locations.

4.9.2 White Point Housing

Noise impacts have been determined for development of up to 96 housing units on the White Point site. Construction noise, traffic noise and other project generated noise are discussed in this evaluation.

4.9.2.1 Construction Noise

Impacts identified for construction activities in this subchapter would be the same for applicable demolition activities. Construction activities are normally carried out in stages, and each stage has its own noise characteristics based on the mix of construction equipment in use. It is anticipated that maximum levels of construction noise would be generated during earthmoving stages. Typical noise at construction sites is non-steady and intermittent. Based on the construction schedule, an analysis has been performed to evaluate the potential impact of construction noise. Construction activities would not exceed 8 hours per day, and would occur 5 days per week. Construction would not occur on Saturday or Sunday. Construction would generate intermittent high noise on and adjacent to the White Point housing area. Residences located northwest of the site at the Pacific Heights housing area and southeast of the site, and portions of White Point Park (a vacant area), could be exposed to an L_{eq} ranging from 67 to 86 dBA during a typical day of construction activity. According to environmental noise modeling, without feasible noise control, the maximum noise level (L_{max}) generated by individual equipment could exceed 75 dBA when measured at a distance of 50 feet from the noise source.

In accordance with normal construction practice, noise generating construction equipment would be equipped with effective noise control devices (i.e., mufflers, lagging, and/or engine enclosures). All equipment would be properly maintained to ensure that no additional noise, due to worn or improperly maintained parts, would be generated. The State of California Noise Insulation Standards would be enforced, as applicable.

Noisier activities would be moved away from residential property lines and scheduled during the midday when possible, so that quiet morning and evening periods could be avoided. Truck deliveries and trash pick-up would only be permitted during the normal eight-hour work day, which would not start before 7 a.m. or extend past 7 p.m.

Residences in the immediate vicinity of the housing site would be notified in advance of construction activities. A community complaint telephone line would be provided by the Air Force. If noise complaints are reported, construction activity noise would be monitored. If standards are exceeded, reasonable means to reduce construction noise would be identified and implemented.

Residential properties located along haul routes would not experience a significant increase in DNL as a result of construction activity. However, maximum noise levels generated by trucks passing by, while intermittent and not significant, would be a source of annoyance. Haul routes would be selected to minimize noise exposure at sensitive locations.

Significant impacts from noise are not expected to occur.

4.9.2.2 Traffic Noise

The Air Force would demolish all 78 existing Navy housing units at the White Point housing area and construct up to 96 new units on the Navy housing area and the adjacent 8 acres. The development of housing would result in new roadway traffic associated with additional residential units. Projected roadway traffic noise levels were determined for major roadways within the study area using the FHWA traffic noise prediction methodology FHWA-RD-77-108. Traffic data used in the analysis are provided on Table D-1 (Appendix D).

The incremental increase in traffic noise DNL for major roadway segments affected by the White Point housing area are summarized in Table 4.9-1. The incremental increase in traffic noise at residential locations along the major roadway segments would be as much as 0.4 dBA over year 1997 baseline noise levels. The overall incremental increase in traffic noise DNL would not be perceptible to most persons (see Figure 3.9-1) and is not significant.

While the incremental increase would be low, the results of the roadway analysis for 1997, which include the new traffic generated by the housing, indicates that noise levels would exceed the noise standards along the major arterial segments. Table 4.9-2 provides the results of the roadway noise analysis for the White Point housing area. This table shows distances from the roadways to the DNL contours and the L_{eq} of 67 dBA contour.

However, traffic noise impacts would remain significant even without the housing at any of the proposed or alternative housing sites. Potential noise mitigation measures for surface traffic are not feasible because the majority of residential properties exposed to a DNL of at least 65 dBA and/or peak hour L_{eq} of 67 dBA have front yards and driveways facing the arterials. Construction of a continuous barrier at these locations would completely block access to the properties. Construction of partial barriers or barriers with access openings would not effectively mitigate traffic noise. Therefore, incremental increase in noise levels attributed to the project is not considered significant.

4.9.2.3 Project Generated Noise

Project generated noise associated with this alternative would involve occupancy of up to 96 new units that would replace approximately 78 existing housing units, and there would be no significant change in on-site noise. The predominant sources of noise would be from activities such as children playing and recreational activities. The project generated noise is not expected to exceed intrusive noise standards. Because of the characteristics of the noise, these activities may be discernible at the nearest noise sensitive locations. Project generated noise would not be considered a significant impact.

4.9.3 Montgomery Navy Housing

Noise impacts have been determined for development of up to 96 housing units on the Montgomery housing area by the year 1997.

4.9.3.1 Construction Noise

Demolition and construction activities on the Montgomery housing area would be the same as those described for the White Point housing site (Subchapter 4.9.2). Construction would generate intermittent high noise on and adjacent to the Montgomery housing area. Residences located at the Montgomery site and across Western Avenue to the west, and directly south of the former Taper Avenue housing area could be exposed

Table 4.9-1

Incremental Increase in Traffic Noise Levels at White Point Housing

Roadway	Segment	Sound Level (dBA)[a] White Point Housing
9th Street	W of Gaffey Street	0.0
22nd Street	E of Gaffey Street	0.0
	W of Pacific Avenue	0.0
25th Street	W of Gaffey Street	0.4
	W of Alma Street	0.4
	E of Alma Street	0.3
	W of White Point Drive	0.0
	E of White Point Drive	0.3
	W of Western Avenue	0.0
	E of Western Avenue	0.0
Route 110	E of Gaffey Street	0.1
Gaffey Street	S of Summerland Avenue	0.0
	N of Route 110	0.0
	S of Route 110[b]	0.1
	N of 1st Street[b]	0.1
	S of 1st Street[b]	0.1
	N of 7th Street	0.1
	S of 7th Street	0.1
	N of 9th Street	0.1
	S of 9th Street	0.1
	N of 22nd Street	0.2
	S of 22nd Street	0.3
	N of 25th Street	0.3
Alma Street	N of 22nd Street	0.1
	S of 22nd Street	0.1
	N of 25th Street	0.1
Pacific Avenue	N of 22nd Street	0.0
Summerland Avenue	E of Gaffey Street	0.0
Whites Point Drive	S of 25th Street	0.1
Western Avenue	N of 25th Street	0.0
	S of 25th Street	0.0

a Incremental increase experienced over 1997 baseline conditions.

b These arterials would not experience an incremental increase in DNL because worst-case noise levels are already produced with level-of-service C traffic conditions. However, as a worst-case, the incremental increase could be experienced during peak hours L_{eq}.

Note: Roadway segments within the study area which would not experience an increase in average daily traffic volume have not been evaluated.

Table 4.9-2

White Point Housing 1997 Traffic Noise

		Distance to Roadway Centerline (feet)			
Roadway	**Segment**	**DNL of 65 dBA**	**DNL of 70 dBA**	**DNL of 75 dBA**	**Pk Hr L_{eq} of 67 dBA**
9th Street	W of Gaffey Street	59	--	--	--
22nd Street	E of Gaffey Street	--	--	--	--
	W of Pacific Avenue	--	--	--	--
25th Street	W of Gaffey Street	76	--	--	--
	W of Alma Street	80	--	--	--
	E of Alma Street	84	--	--	--
	W of White Point Drive	103	--	--	65
	E of White Point Drive	98	--	--	63
	W of Western Avenue	129	--	--	80
	E of Western Avenue	103	--	--	66
Route 110	E of Gaffey Street	791	254	90	460
Gaffey Street	S of Summerland Avenue	129	--	--	77
	N of Route 110	131	--	--	78
	S of Route 110	265	87	--	155
	N of 1st Street	265	87	--	155
	S of 1st Street	265	87	--	155
	N of 7th Street	244	81	--	143
	S of 7th Street	225	75	--	132
	N of 9th Street	221	74	--	130
	S of 9th Street	203	68	--	119
	N of 22nd Street	119	--	--	72
	S of 22nd Street	116	--	--	70
	N of 25th Street	110	--	--	67
Alma Street	N of 22nd Street	--	--	--	--
	S of 22nd Street	--	--	--	--
	N of 25th Street	--	--	--	--
Pacific Avenue	N of 22nd Street	84	--	--	--
Summerland Avenue	E of Gaffey Street	72	--	--	--
Whites Point Drive	S of 25th Street	--	--	--	--
Western Avenue	N of 25th Street	217	76	--	129
	S of 25th Street	87	--	--	--

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

to an L_{eq} ranging from 67 to 86 dBA during a typical day of construction activity. According to environmental noise modeling, without feasible noise control, the maximum noise level (L_{max}) generated by individual equipment could exceed 75 dBA when measured at a distance of 50 feet from the noise source. With implementation of the construction management practices described in Subchapter 4.9.2.1, impacts from noise would not be significant.

4.9.3.2 Traffic Noise

The Air Force would demolish approximately 91 existing units and replace them with up to 96 new units at the Montgomery housing area under this alternative. Projected roadway traffic noise levels were determined for major roadways within the study area using FHWA-RD-77-108. Traffic data used in the analysis are provided in Table D-1 (Appendix D).

The incremental increase in traffic noise DNL for major roadway segments affected by the Montgomery housing area are summarized in Table 4.9-3. The incremental increase in traffic noise at residential locations along the major roadway segments would be as much as 2.0 dBA over year 1997 baseline noise levels. The overall incremental increase in traffic noise DNL would not be perceptible to most persons (see Figure 3.9-1) and is not considered significant.

While the incremental increase would be low, the results of the roadway analysis for 1997 which includes the new traffic generated at the housing indicates that noise levels would exceed the noise standards along the major arterial segments. Table 4.9-4 provides the results of the roadway noise analysis for the Montgomery housing area. This table shows distances from the roadways to various DNL contours and the L_{eq} of 67 dBA contour. For the reasons discussed in Subchapter 4.9.2.2, the incremental increase in noise levels attributed to the project is not considered significant.

4.9.3.3 Project Generated Noise

This alternative would involve occupancy of up to 96 new units that would replace approximately 91 existing housing units, and there would be no substantial change in on-site noise. The resultant noise would be the same as described in Subchapter 4.9.2.3, and is not considered a significant impact.

4.9.4 Fort MacArthur Upper Reservation

Noise impacts have been determined for the proposed development of up to 96 housing units on the Fort MacArthur Upper Reservation housing site, which would be completed and occupied by the year 1997. Construction noise, surface traffic noise, and other project generated noise are discussed in this evaluation.

4.9.4.1 Construction Noise

Demolition and construction activities on the Fort MacArthur Upper Reservation would be the same as those described for the White Point housing site (Subchapter 4.9.2).

Table 4.9-3

Incremental Increase in Traffic Noise Levels at Montgomery Housing

Roadway	Segment	Sound Level (dBA)[a] Taper Avenue/Montgomery Housing
1st Street	W of Figueroa Street	0.0
	E of Figueroa Place	0.0
Anaheim Street	W of Figueroa Street	0.0
	W of Figueroa Place	0.0
	E of Figueroa Place	0.0
	E of Vermont Avenue	0.0
Palos Verdes Drive North	W of Western Avenue	0.0
John Montgomery Drive	E of Western Avenue	2.0
Westmont Drive	W of Gaffey Street	0.2
Figueroa Street	South of 1st Street	0.0
	N of Anaheim Street	0.0
Figueroa Place	South of 1st Street	0.0
	N of Anaheim Street	0.0
Gaffey Street	N of Anaheim Street	0.0
	S of Anaheim Street	0.1
	N of Westmont Drive	0.1
	S of Westmont Drive	0.0
Western Avenue	N of Palos Verdes Drive North	0.1
	S of Palos Verdes Drive North	0.1
	N of John Montgomery Drive	0.1
	S of John Montgomery Drive	0.0

[a] Incremental increase experienced over 1997 baseline conditions

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated.

Table 4.9-4

Montgomery Housing 1997 Traffic Noise

Roadway	Segment	Distance to Roadway Centerline (feet) DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
1st Street	W of Figueroa Street	60	--	--	--
	E of Figueroa Place	96	--	--	56
Anaheim Street	W of Figueroa Street	179	64	--	107
	W of Figueroa Place	201	71	--	120
	E of Figueroa Place	178	64	--	107
	E of Vermont Avenue	185	66	--	111
Palos Verdes Drive N	W of Western Avenue	296	106	--	215
John Montgomery Drive	E of Western Avenue	--	--	--	--
Westmont Drive	W of Gaffey Street	73	--	--	--
Figueroa Street	South of 1st Street	97	--	--	59
	N of Anaheim Street	87	--	--	--
Figueroa Place	South of 1st Street	69	--	--	--
	N of Anaheim Street	65	--	--	--
Gaffey Street	N of Anaheim Street	215	75	--	128
	S of Anaheim Street	196	69	--	116
	N of Westmont Drive	190	67	--	113
	S of Westmont Drive	234	80	--	138
Western Avenue	N of Palos Verdes Drive N	115	--	--	85
	S of Palos Verdes Drive N	182	65	--	132
	N of John Montgomery Drive	226	78	--	134
	S of John Montgomery Drive	218	76	--	129

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

Construction of the proposed housing would generate intermittent high noise on and adjacent to the housing site. Residences located on Alma Street, 30th Street, 36th Street, and Gaffey Street which directly face the proposed housing site could be exposed to an L_{eq} ranging from 67 to 86 dBA during a typical day of construction activity. At LAUSD facilities, the L_{eq} from typical construction activities could also range from 67 to 86 dBA. According to environmental noise modeling, without feasible noise control, the maximum noise level (L_{max}) generated by individual equipment could exceed 75 dBA when measured at a distance of 50 feet from the noise source. With implementation of the construction management practices described in Subchapter 4.9.2.1, impacts from noise would not be significant.

Residential properties located along haul routes would not experience a substantial increase in DNL as a result of construction activity. However, maximum noise generated by trucks passing by, while intermittent and not significant, would be a source of annoyance. Haul routes would be selected to minimize noise exposure at sensitive locations.

4.9.4.2 Traffic Noise

The development of housing at Fort MacArthur Upper Reservation would result in new roadway traffic associated with the new residential units. Projected roadway traffic noise levels were determined for major roads within the study area using FHWA traffic noise prediction methodology FHWA-RD-77-108. Traffic data used in the analysis are provided in Table D-1 (Appendix D).

The incremental increases in traffic noise DNL for major roadway segments affected by the proposed new housing are summarized in Table 4.9-5. The incremental increase in traffic noise at residential locations along the major roadway segments in the study area is expected to range from 0.1 to 0.7 dBA over 1997 baseline conditions if all traffic from the housing site were to use the Gaffey Street access. If all of the traffic were to use the Alma Street access, the incremental increase in traffic noise DNL would range from 0.1 to 2.4 dBA over 1997 baseline conditions. It is planned that both accesses would be available, but each access route is separately analyzed in this evaluation to determine the possible worst-case impacts. With use of either Gaffey Street or Alma Street access to the housing site, the overall incremental increase in traffic noise DNL would not be perceptible to most persons (see Figure 3.9-1), and are not considered significant.

However, while the incremental increase would be low, the results of the roadway analysis for 1997 which include the new traffic generated by the housing indicates that noise levels would exceed the noise standards along the major arterial segments. Table 4.9-6 provides the results of the roadway noise analysis for the housing site if all traffic were to use the Gaffey Street access. This table shows distances from the roadways to the DNL contours and the L_{eq} of 67 dBA contour. Table 4.9-7 provides the distances to the DNL contours and the L_{eq} of 67 dBA contour if all traffic from the housing site were to use the Alma Street access.

4.9.4.3 Project Generated Noise

Outdoor activities at the proposed housing area would generate new sources of noise at this site. The L_{eq} generated by these outdoor activities could be as high as 88 dBA at a distance of 3 feet. Considering the setback distance to the nearest noise sensitive receptors and the shielding to be provided by proposed housing structures, L_{eq} from outdoor activities at the housing area is not expected to exceed the intrusive noise standard of 50 dBA at the residences adjacent to the housing site. The resultant noise would be the same as described in Subchapter 4.9.2.3, and is not considered a significant impact.

Table 4.9-5

Incremental Increase in Traffic Noise Levels at Fort MacArthur Upper Reservation

Roadway	Segment	Sound Level (dBA)[a]	
		Gaffey Street Access	Alma Street Access
9th Street	W of Gaffey Street	0.0	0.0
22nd Street	E of Gaffey Street	0.0	0.0
	W of Pacific Avenue	0.0	0.0
25th Street	W of Gaffey Street	0.0	0.4
	W of Alma Street	0.0	0.0
	E of Alma Street	0.0	0.3
32nd Street	E of Gaffey Street	0.1	--
I-110	E of Gaffey Street	0.1	0.1
Gaffey Street	S of Summerland Avenue	0.0	0.0
	N of I-110	0.0	0.0
	S of I-110[b]	0.1	0.1
	N of 1st Street[b]	0.1	0.1
	S of 1st Street[b]	0.1	0.1
	N of 7th Street	0.1	0.1
	S of 7th Street	0.1	0.1
	N of 9th Street	0.1	0.1
	S of 9th Street	0.1	0.1
	N of 22nd Street	0.2	0.2
	S of 22nd Street	0.3	0.3
	N of 25th Street	0.3	0.3
	S of 25th Street	0.5	0.2
	N of 32nd Street	0.7	--
	S of 32nd Street	0.1	--
	N of Leavenworth Drive	0.1	--
	S of Leavenworth Drive	0.1	--
Alma Street	N of 22nd Street	0.1	0.1
	S of 22nd Street	0.1	0.1
	N of 25th Street	0.1	0.1
	S of 25th Street	--	2.4
	N of Meade Drive	--	2.4
	S of Meade Drive	--	0.1
Pacific Avenue	N of 22nd Street	0.0	0.0
Summerland Avenue	E of Gaffey Street	0.0	0.0

[a] Incremental increase experienced over 1997 baseline conditions.

[b] These arterials would not experience an incremental increase in DNL because worst-case noise levels are already produced with level-of-service C traffic conditions. However, as a worst-case, the incremental increase could be experienced during peak hours L_{eq}.

-- These arterials would not experience an increase in traffic volume.

Table 4.9-6

Fort MacArthur Upper Reservation 1997 Traffic Noise with Gaffey Street Access

Roadway	Segment	Distance to Roadway Centerline (feet)			
		DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
9th Street	W of Gaffey Street	59	--	--	--
22nd Street	E of Gaffey Street	--	--	--	--
	W of Pacific Avenue	--	--	--	--
25th Street	W of Gaffey Street	71	--	--	--
	W of Alma Street	72	--	--	--
	E of Alma Street	78	--	--	--
32nd Street	E of Gaffey Street	--	--	--	--
I-110	E of Gaffey Street	791	254	90	460
Gaffey Street	S of Summerland Avenue	129	--	--	77
	N of I-110	131	--	--	78
	S of I-110	265	87	--	155
	N of 1st Street	265	87	--	155
	S of 1st Street	265	87	--	155
	N of 7th Street	244	81	--	143
	S of 7th Street	225	75	--	132
	N of 9th Street	221	74	--	130
	S of 9th Street	203	68	--	119
	N of 22nd Street	119	--	--	72
	S of 22nd Street	116	--	--	70
	N of 25th Street	107	--	--	62
	S of 25th Street	68	--	--	--
	N of 32nd Street	--	--	--	--
	S of 32nd Street	--	--	--	--
	N of Leavenworth Drive	--	--	--	--
	S of Leavenworth Drive	--	--	--	--
Alma Street	N of 22nd Street	--	--	--	--
	S of 22nd Street	--	--	--	--
	N of 25th Street	--	--	--	--
	S of 25th Street	--	--	--	--
Pacific Avenue	N of 22nd Street	84	--	--	--
Summerland Avenue	E of Gaffey Street	72	--	--	--

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

Table 4.9-7

Fort MacArthur Upper Reservation 1997 Traffic Noise with Alma Street Access

Roadway	Segment	Distance to Roadway Centerline (feet) DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
9th Street	W of Gaffey Street	59	--	--	--
22nd Street	E of Gaffey Street	--	--	--	--
	W of Pacific Avenue	--	--	--	--
25th Street	W of Gaffey Street	76	--	--	--
	W of Alma Street	72	--	--	--
	E of Alma Street	84	--	--	--
32nd Street	E of Gaffey Street	--	--	--	--
Meade Drive	E of Gaffey Street	--	--	--	--
I-110	E of Gaffey Street	791	254	90	460
Gaffey Street	S of Summerland Avenue	129	--	--	77
	N of I-110	131	--	--	78
	S of I-110	265	87	--	155
	N of 1st Street	265	87	--	155
	S of 1st Street	265	87	--	155
	N of 7th Street	244	81	--	143
	S of 7th Street	225	75	--	132
	N of 9th Street	221	74	--	130
	S of 9th Street	203	68	--	119
	N of 22nd Street	119	--	--	72
	S of 22nd Street	116	--	--	70
	N of 25th Street	107	--	--	62
	S of 25th Street	63	--	--	--
	N of 32nd Street	--	--	--	--
	S of 32nd Street	--	--	--	--
	N of Meade Drive	--	--	--	--
	S of Meade Drive	--	--	--	--
Alma Street	N of 22nd Street	--	--	--	--
	S of 22nd Street	--	--	--	--
	N of 25th Street	--	--	--	--
	S of 25th Street	--	--	--	--
Pacific Avenue	N of 22nd Street	84	--	--	--
Summerland Avenue	E of Gaffey Street	72	--	--	--

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

Table 4.9-8

No Action (Baseline) 1997 Traffic Noise

Roadway	Segment	Distance to Roadway Centerline (feet) DNL of 65 dBA	DNL of 70 dBA	DNL of 75 dBA	Pk Hr L_{eq} of 67 dBA
9th Street	W of Gaffey Street	58	--	--	--
22nd Street	E of Gaffey Street	--	--	--	--
	W of Pacific Avenue	--	--	--	--
25th Street	W of Gaffey Street	70	--	--	--
	W of Alma Street	72	--	--	--
	E of Alma Street	77	--	--	--
32nd Street	E of Gaffey Street	--	--	--	--
I-110	E of Gaffey Street	776	254	90	460
Gaffey Street	S of Summerland Avenue	128	--	--	77
	N of I-110	130	--	--	78
	S of I-110	383	123	--	223
	N of 1st Street	362	117	--	211
	S of 1st Street	267	88	--	156
	N of 7th Street	239	79	--	140
	S of 7th Street	219	73	--	129
	N of 9th Street	215	72	--	126
	S of 9th Street	197	66	--	116
	N of 22nd Street	113	--	--	69
	S of 22nd Street	110	--	--	67
	N of 25th Street	103	--	--	59
	S of 25th Street	61	--	--	--
	N of 32nd Street	--	--	--	--
	S of 32nd Street	--	--	--	--
	N of Leavenworth Drive	--	--	--	--
	S of Leavenworth Drive	--	--	--	--
Alma Street	N of 22nd Street	--	--	--	--
	S of 22nd Street	--	--	--	--
	N of 25th Street	--	--	--	--
	S of 25th Street	--	--	--	--
Pacific Avenue	N of 22nd Street	84	--	--	--
Summerland Avenue	E of Gaffey Street	72	--	--	--

-- Annual average daily traffic (ADT) volume and traffic data for this arterial do not generate noise levels which equal or exceed this noise level.

Note: Roadway segments within the study area which would not experience an increase in ADT have not been evaluated, and roadway segments within the study area which are not listed do not generate traffic noise levels which equal or exceed any of the listed categories.

4.9.5 No Action Alternative

Noise impacts have been determined for the No Action Alternative. Construction or project generated noise would not occur as a result of the No Action Alternative; therefore, no associated adverse impacts would occur.

Although present (1994) traffic noise would be slightly less than determined for the project scenarios, future traffic noise without the proposed action would be higher than 1994 traffic noise. The results of the roadway noise analysis for year 1997 without the housing (which is equivalent to the future 1997 traffic noise baseline) is presented in Table 4.9-8. This table shows distances from the roadways to the DNL contours and the L_{eq} of 67 dBA contour. The analysis indicates that, even under the No Action Alternative, noise levels would exceed noise standards along the major arterial segments.

4.9.6 Cumulative Impacts

4.9.6.1 Construction Noise

There are no known past, present, or reasonably foreseeable future actions that could, in conjunction with the proposed construction at White Point or any alternative site, result in cumulative project construction noise impacts.

4.9.6.2 Traffic Noise

Other past, present, and reasonably foreseeable future actions have been incorporated into the estimate of 1997 base year traffic noise impacts. These impacts, plus impacts expected from the proposed housing, constitute cumulative impacts. For the proposed and alternative housing sites, the cumulative DNL would exceed the noise standards along major arterial segments (see Tables 4.9-3, 4.9-5, 4.9-7, and 4.9-8). The cumulative noise level at residences located along these roadway segments would exceed Air Force, FAA, and HUD criteria (see Subchapter 4.9.1). The arterial segments affected at each of the proposed and alternative housing sites are listed below.

(1) For the White Point housing site, the cumulative DNL generated by year 1997 traffic would exceed the DNL standard of 65 dBA at the residential properties bordering portions of 9th Street, 25th Street, Gaffey Street, Pacific Avenue, Summerland Avenue, and Western Avenue.

(2) For the Montgomery housing area, the cumulative DNL generated by year 1997 traffic would exceed the DNL standard of 65 dBA at the residential properties bordering portions of 1st Street, Palos Verdes Drive North, Westmont Drive, Figueroa Street, Figueroa Place, and Western Avenue.

(3) At Fort MacArthur Upper Reservation, with access from either Gaffey Street or Alma Street, the cumulative DNL generated by year 1997 traffic would exceed the DNL standard of 65 dBA at residential properties bordering portions of Gaffey Street, Pacific Avenue, Summerland Avenue, 9th Street, and 25th Street. The peak hour L_{eq} standard of 67 dBA would be exceeded at

the residential properties located along Gaffey Street (Route 110), north of 25th Street.

Noise standards would be exceeded at these residential areas even under future conditions without the proposed housing (see Table 4.9-8). There are no feasible means to effectively reduce noise at these locations. The incremental increase in noise levels attributed to the project is not considered significant. Therefore, cumulative traffic noise impact at any of the proposed or alternative housing sites and for the No Action Alternative would not be considered significant.

4.9.6.3 Project Generated Noise

There are no known past, present, or reasonably foreseeable future actions that could, in conjunction with occupancy of the proposed new or existing housing, result in cumulative project generated noise impacts.

4.9.7 Unavoidable Adverse Impacts

Increased noise from construction, traffic, and occupancy of the housing units would be unavoidable impacts. Noise from construction of the housing units would be unavoidable, but would be temporary and limited to the duration of construction activities. This impact is not expected to be significant.

The incremental increase in traffic noise levels associated with the proposed White Point housing area would be as high as 0.4 dBA. Traffic noise levels would incrementally increase by as much as 2.0 dBA as a result of the proposed housing at the Montgomery housing site. The new housing would result in an incremental increase in year 1997 traffic noise levels of up to 0.7 dBA at Fort MacArthur Upper Reservation with access from Gaffey Street, or up to 2.4 dBA with access from Alma Street. These overall increases in traffic noise levels would not be perceptible to most persons (see Figure 3.9-1), and would not be a significant impact.

Noise generated by human outdoor activities is not expected to exceed the intrusive noise standard at the noise sensitive locations which border any of the proposed or alternative housing sites. The noise from these activities would not be a significant impact.

4.9.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternative.

4.10 BIOLOGICAL RESOURCES

4.10.1 Significance Criteria

Impacts to biological resources would be considered significant if implementation of the proposed action or an alternative were to directly or indirectly substantially affect the continued existence of any listed special status (i.e., candidate, rare, threatened or endangered) floral and/or faunal species or their habitats (OPR, 1992).

4.10.2 White Point Navy Housing

4.10.2.1 Vegetation

With the exception of mature trees which would be retained (insofar as possible), most plant species would be removed from the site during construction. New housing construction would result in the loss of existing vegetated areas and up to 8 acres of open space. There would also be a loss of trees and shrubs used for bird perching, roosting and nesting. Construction of new housing on the 8-acre parcel would remove the sloped, non-native grassy area, but would not impact the northeastern corner and eastern edge of the site.

As feasible, revegetation during landscaping would include native grasses, forbs, shrubs and trees. Such plantings in landscaping designs would be aesthetically pleasing, require less water and fertilizers, help reduce the potential for fire and need for fire control methods (e.g., mowing and disking), be beneficial to surviving or returning wildlife to use for food and cover, help to control erosion of soils and the growth of invasive weed species, and would possibly help enhance the diversity of plants and animals on-site. Areas considered unbuildable and left as open space would be habitat-enhanced with mechanical removal of ruderal species and plantings of native species. Temporary irrigation would be needed for approximately one to two years, to help establish native plantings. Native plantings would not require supplemental watering after establishment.

A plant salvage program would be implemented prior to construction, to recover the usable landscape-type species currently located at the site. As feasible, these plants could be utilized during revegetation during landscaping.

Erosion control measures would be included in the SWPPP prepared for the proposed construction (see Chapter 4.7). Significant adverse impacts to vegetation are not expected upon implementation of the recommended control measures. While not a requirement of the SWPPP, it could be coordinated with native vegetation plantings to optimize the chances for successful erosion control and aid in the establishment of native plant species. Cultivated species would most likely be landscaped around the housing units, but many of the existing plants could be salvaged and reused.

Impacts to vegetation are not considered significant.

4.10.2.2 Wildlife

The loss of plant cover due to construction at the White Point site would result in loss or relocation of on-site faunal species. Interference with the movement, and foraging, roosting, nesting, and/or denning areas of wildlife species common to the area may also occur. These impacts are not considered significant.

4.10.2.3 Threatened, Endangered and Special Status Species

No known candidate, rare, threatened, endangered, or special status species occur at the White Point site. Therefore, no adverse impacts to such species would result from implementation of the proposed action at this site.

4.10.2.4 Sensitive Habitats

No known sensitive habitats are present at the White Point site. Therefore, no adverse impacts to sensitive habitats would result.

4.10.3 Montgomery Navy Housing

4.10.3.1 Vegetation

Most plant species would be removed from the 25 acres to be disturbed during construction. Construction of the new housing at this site would result in the loss of some vegetated areas. Disturbed areas would be revegetated/landscaped following construction as described in Subchapter 4.10.2.1. Therefore, impacts to vegetation would not occur.

4.10.3.2 Wildlife

The loss of plant cover due to construction at the Montgomery Navy housing site would result in the loss or relocation of faunal species. Impacts to wildlife at the Montgomery housing site would be the same as discussed in Subchapter 4.10.2.2.

4.10.3.3 Threatened, Endangered and Special Status Species

No known candidate, rare, threatened, endangered, or special status species occur at the Montgomery housing site. Therefore, no adverse impacts to listed species would result.

4.10.3.4 Sensitive Habitats

No known sensitive habitats are present at the Montgomery housing site. Therefore, no adverse impacts to sensitive habitats would result.

4.10.4 Fort MacArthur Upper Reservation

4.10.4.1 Vegetation

Construction of the proposed housing at Fort MacArthur Upper Reservation would result in the loss of up to 15.7 acres of vegetated habitat. Four acres along the moderately steep slope on the western boundary of the site next to Alma Street would not be disturbed by earth moving activities (other than any required slope stabilization) and would remain as open space. The grassy and brushy open space near Barlow-Saxton Road and Gaffey Street occupies roughly 1.4 acres, and would not be disturbed other than for widening of Barlow-Saxton Road. About 5.5 acres of developed areas (buildings and roads) would be demolished and removed for housing construction.

Most plant species on the buildable acreage would be removed from the site during construction. The loss of vegetated areas and open space at the site would be unavoidable. Even though the weedy, non-native grassland and forb cover, plus cultivar species, are common in the coastal southern California region, some of these species have intrinsic value for improving habitat quality, especially for wildlife species that use the vegetation for food, cover, roosting, nesting, and/or denning activities. However, such plant cover loss is often considered less important because non-native species are considered to be of lesser value than native species. The proposed housing construction activities would decrease the numbers and diversity of floral species on-site. The loss of any of the few native plant species would be insignificant because most of these native species often grow as weeds or ruderal plants, and they can be found in abundance elsewhere in the region. They are also used in revegetation seed mixes or plantings.

Revegetation and erosion control measures (see Subchapter 4.10.2.1) would be included as part of the proposed construction. A plant salvage program would not be required at this site. Significant adverse impacts to vegetation would not be expected upon implementation of these measures.

4.10.4.2 Wildlife

The proposed construction activities at the Fort MacArthur Upper Reservation housing site would result in loss or relocation of faunal species on-site, particularly mammals, reptiles and amphibians. Removal of non-native, cultivated trees and shrubs used as roosting or nesting areas could affect abundance of individuals and species diversity, and wildlife foraging, roosting, nesting, and/or denning areas. This would not be considered significant.

4.10.4.3 Threatened, Endangered and Special Status Species

No known candidate, rare, threatened or endangered plant or animal species occur at the housing site. Therefore, adverse impacts to such species would not be anticipated.

4.10.4.4 Sensitive Habitats

No known sensitive habitats occur at the housing site. No adverse impacts to sensitive habitats would be expected.

4.10.5 No Action Alternative

Under the No Action Alternative, the proposed housing would not be constructed, and the proposed housing sites would remain in their present condition. Therefore, no adverse impacts to existing biological resources would occur.

4.10.6 Cumulative Impacts

Construction activities required for the proposed new housing at the White Point or any of the alternative sites, especially earthmoving activities, have the potential to destroy or damage existing biological resources. The loss of this vegetation would cumulatively contribute to losses resulting from increased development in the region.

4.10.7 Unavoidable Adverse Impacts

Proposed housing construction and earthmoving activities would adversely affect plant and animal species now living on or frequenting White Point or any of the alternative sites. The plants, and some animal species, currently on these sites would be lost or forced to relocate. The loss of vegetation would potentially result in limitation and loss of floral and faunal species diversity at any of the sites and in the region. The loss of foraging, roosting, nesting, and denning areas at any of the sites would be unavoidable adverse impacts. However, because most species affected are common and/or are not listed or considered sensitive, these impacts are not considered significant.

4.10.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.11 CULTURAL RESOURCES

4.11.1 Significance Criteria

The significance of cultural resources is evaluated under the criteria for inclusion on the National Register of Historic Places (NRHP), authorized under the National Historic Preservation Act of 1966, as amended. The criteria, defined in 36 CFR 60.4, are as follows:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:
>
> a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b) That are associated with the lives of persons significant in our past; or
>
> c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d) That have yielded, or may be likely to yield, information important to prehistory or history.

Since the process for listing a site on the NRHP can be a lengthy one, federal agencies and the California Office of Historic Preservation can determine that a site is eligible for listing on the Register, which has the same effect. Unless a resource is of exceptional importance or value, sites younger than 50 years are not considered eligible for the NRHP. However, it is recommended that sites 45 years old or older be considered during the evaluation process to allow for potential delays between evaluation and project construction periods.

Impacts of the Proposed Action or an alternative would be significant if they resulted in an adverse effect on a cultural resource considered significant under NRHP criteria, and the State Historic Preservation Officer (SHPO) concurred with the finding of adverse effect.

4.11.2 White Point Navy Housing

4.11.2.1 Historical Resources

There are no known historic sites or landmarks on the existing 16.4-acre White Point Navy housing area. Due to the extensive ground alteration for construction of the existing housing, and the lack of significant historic activities at this site, the potential to encounter subsurface historical deposits is considered low. No adverse impacts to historical resources are expected.

The Air Force has submitted a No Adverse Effect Determination to SHPO for the six former military gun emplacement structures (on the 8-acre site) for eligibility on the National Register of Historic Places (36 CFR 60) following procedures stipulated in 36 CFR 800 of the National Historic Preservation Act of 1966. The SHPO and the San Pedro Bay Historical Society have concurred with this determination. Therefore, no significant impacts to historical resources would occur.

4.11.2.2 Archaeological Resources

No archaeological sites have been documented at the existing 16.4-acre White Point Navy housing area. Due to the extensive grading for construction of the existing housing, the potential for buried cultural material is considered low (Petra Resources, 1996d). However, recent investigations in the vicinity have indicated that subsurface archaeological deposits can exist in a highly urbanized area. Since subsurface deposits can be undetected during a field survey, there is a potential to encounter buried archaeological materials during ground disturbing activities required for project construction. Loss, damage, or destruction of potentially eligible resources as a result of construction activities would be a significant adverse impact.

To prevent this potential impact, the Air Force would retain a qualified archaeologist to attend the pre-construction meeting prior to grading of the site and monitor the earthmoving activities, including clearing of vegetation, during project construction. The archaeologist would be on-site full-time while vegetation is being cleared, but may be reduced to part-time monitoring if no cultural materials are encountered. If artifacts are uncovered during project construction, earthmoving activities would be temporarily halted or redirected until the archaeologist and the LAAFB historic preservation officer/cultural resource manager have examined the remains, determined their significance, made recommendations regarding additional mitigation, and initiated or completed these measures. A data recovery plan that includes an excavation plan, laboratory analysis, and report preparation, shall be developed prior to the recovery of the remains and coordinated with the SHPO.

Any recovered prehistoric and historic artifacts shall be offered, on a first right-of-refusal basis, to a repository with a retrievable collection system and an educational and/or research interest in the materials. Copies of the data recovery plan shall be submitted to the South Central Coastal Information Center at the University of California Los Angeles (UCLA). Since the site is federal property, any recovered artifacts would be curated by the Air Force in a repository that meets the requirements of 36 CFR Part 79. A final field monitoring report, including an itemized list of any recovered materials, would be prepared and submitted to the repository accepting the recovered materials, if applicable, and to the South Central Coastal Information Center at UCLA. An additional copy of the report shall accompany any recovered artifacts to the repository.

The archaeological survey results for the White Point 8-acre area indicate that the potential for adverse impacts to prehistoric resources, as a result of the proposed development, is low. However, since buried remains may go undetected during a pedestrian survey; ground surface visibility was limited; numerous archaeological sites are recorded in the project vicinity; and a potential archaeological site (Primary #19-120003) is mapped adjacent to the project area, the potential to impact unknown prehistoric resources exists. This potential impact would also be prevented by retaining a qualified archaeological monitor as described herein.

4.11.3 Montgomery Navy Housing

4.11.3.1 Historical Resources

There are no known historic sites or landmarks on the Montgomery Navy housing area, or in its immediate vicinity. Due to the extensive ground alteration for construction of the existing housing, and the lack of significant historic activities at this site, the potential to encounter subsurface historical deposits is considered low. No adverse impacts to historical resources are expected.

4.11.3.2 Archaeological Resources

No archaeological sites have been documented at the Montgomery Navy housing area. Due to the extensive grading for construction of the existing housing, the potential for buried cultural material is considered low (Petra Resources, 1996d). However, to prevent the potential impacts from loss of resources, a qualified archaeologist will monitor earthmoving activities in accordance with the procedures described in Subchapter 4.11.2.2.

4.11.4 Fort MacArthur Upper Reservation

4.11.4.1 Historic Resources

Due to extensive modifications at the site, the original setting of the World War I and II buildings on the Upper Reservation has been extensively altered. None of the military buildings located within the boundaries of the proposed housing site appear to be architecturally significant (EP, 1989). Existing structures consist of asbestos-paneled wooden frames with corrugated steel roofs. Each rests on a concrete slab. Many World War II buildings outside the housing site on the Upper Reservation are better preserved than those on the housing site (EP, 1989). Because these buildings are not considered historically significant, their demolition would not be a significant adverse impact. SHPO has been consulted regarding these buildings on the Fort MacArthur Upper Reservation, pursuant to Section 106 of the National Historic Preservation Act, and has concurred with the determination of no adverse effect (Caesar, 1996).

The Battery Barlow-Saxton is located in the northeast portion of the housing site. Because it is listed on the NRHP, any development which might involve this battery must comply with all provisions of the National Historic Preservation Act of 1966, as amended. The proposed Gaffey Street access road would pass alongside the battery. The Proposed Action does not include any construction or other activities which would directly impact the battery. With housing development, there would be an increase in the number of people and level of activity in the area. This would be a deterrent for unauthorized activities and vandalism of the battery. However, there are safety concerns for the children living in the proposed housing because this is a subterranean feature with an open top at grade. Fencing or other measures to secure the battery would be part of site preparation activities during construction. Maintenance of the battery would continue to be the responsibility of LAUSD. As a result, no significant adverse impacts to the battery are expected. SHPO has concurred with the determination of no adverse effect on the battery, contingent upon implementing measures to control access to the battery (Caesar, 1996).

Due to the past historic military use of the site, there is a potential for subsurface historical materials. To prevent this potential impact, a qualified archaeologist would be retained to monitor earthwork activities in accordance with the procedures described in Subchapter 4.11.2.2.

4.11.4.2 Archaeological Resources

No archaeological sites have been documented at the Fort MacArthur Upper Reservation. However, due to the number of prehistoric sites and isolated artifacts in the vicinity of the site, and its location above the ocean, there is a moderate potential for subsurface archaeological material. To prevent this potential impact, a qualified archaeologist would be retained to monitor earthwork activities in accordance with the procedures described in Subchapter 4.11.2.2.

4.11.5 No Action Alternative

Under the No Action Alternative, there would be no ground disturbance associated with construction activities. Therefore, the potential for loss, damage, or destruction of cultural resources during construction would not occur. The six former military structures on the White Point 8-acre area and the Battery Barlow-Saxton on the Fort MacArthur Upper Reservation would remain in their current condition, and there would be no beneficial impacts associated with reducing on-going vandalism. No significant adverse impacts to cultural resources would occur under the No Action Alternative.

4.11.6 Cumulative Impacts

Development throughout the Palos Verdes Hills with its associated ground disturbance has the potential to adversely impact cultural resources. Without proper mitigation, there could be a significant loss of knowledge at affected sites that would never be recovered. Development projects are required to address potential impacts to cultural resources in their supporting environmental documentation, and implement mitigation measures as required by local, state, and federal requirements. No related projects have been currently identified in the Palos Verdes area, and cumulative adverse effects on cultural resources are not expected.

4.11.7 Unavoidable Adverse Impacts

Ground disturbance associated with construction of the proposed housing has the potential to impact previously unknown cultural material. Monitoring of earthwork activities by a qualified archaeologist and adherence to the procedures described in Subchapter 4.11.2.2, would prevent potential impacts. Therefore, no unavoidable adverse impacts to cultural resources are anticipated.

4.11.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

4.12 SOCIOECONOMICS

4.12.1 Significance Criteria

The Proposed Action or an alternative would have a significant social and economic impact if the following changes were to occur as a result of project implementation:

(1) An increase in population growth greater than 3 percent of the existing population (Minjares, 1994b);

(2) An increase in land values and housing costs that exceed the purchasing power of local residents;

(3) A disruption and/or division of neighborhoods which results in social instability;

(4) A displacement of existing structures and/or residents which cannot be relocated to comparable areas; and/or

(5) A displacement or termination of existing economic activity which cannot be compensated or relocated to comparable areas with equal potential for income generation.

4.12.2 White Point Navy Housing

4.12.2.1 Population

The Air Force uses an average family size of 3.88 persons per housing unit. Therefore, the increase in the number of housing units from 78 (Navy) to 96 (Air Force) would result in a population increase of 70 persons at this location. The additional 70 persons represents a population growth of 0.34 percent to the White Point ROI. Air Force personnel would replace Navy personnel currently occupying this housing area. It is assumed that all Navy personnel residing in this housing area would leave the ROI. Therefore, no significant adverse impacts are expected.

4.12.2.2 Housing

The Proposed Action would potentially result in the loss of income from units that would no longer be rented or leased by Air Force personnel that would reside in the new housing area. The loss of potential income would be potentially distributed over a wide area, not only within the White Point or Montgomery ROI. The maximum rental/lease income loss would be potentially derived from up to 96 housing units. The housing units would be available for rental/lease by other tenants allowing equal potential for income generation. Therefore, the loss of rental/lease income in the community would not result in termination of existing economic activity, and is not considered a significant impact.

Under the Proposed Action, the Air Force would replace Navy housing with new Air Force housing. The number of housing units in the ROI would remain approximately the same. The Proposed Action would not increase land values or housing costs above the purchasing power of local residents. It would not result in social instability because neighborhoods would not be disrupted or divided, nor would it displace any residents. For these reasons, no significant adverse impacts to housing are expected.

4.12.2.3 Employment

Employment in the ROI is expected to remain approximately the same as existing conditions. It is expected that the number of currently working spouses and/or dependents of Navy personnel would be approximately the same as the number of working spouses and/or dependents of Air Force that would occupy this housing area. Since employment in the ROI is not expected to change, no significant impacts to employment are expected.

4.12.3 Montgomery Navy Housing

4.12.3.1 Population

This alternative would result in a population increase of 20 persons at this location. Air Force personnel would replace Navy personnel currently occupying this housing area. It is assumed that all Navy personnel residing in this housing area would leave the ROI. It is also assumed that any housing units remaining in this area not occupied by the Air Force would be utilized by other federal personnel. Therefore, no significant adverse impacts to population are expected.

4.12.3.2 Housing

Under this alternative, the number of housing units in the ROI would remain approximately the same. It is assumed that any housing remaining in this area not occupied by the Air Force would be utilized by other Federal government personnel. As discussed in Subchapter 4.12.2.2, no significant adverse impacts to housing are expected.

4.12.3.3 Employment

As discussed in Subchapter 4.12.2.3, no significant impacts to employment are expected.

4.12.4 Fort MacArthur Upper Reservation

4.12.4.1 Population

The addition of a maximum of 96 housing units would result in an increase of 373 persons. This is a population growth of 1.8 percent within the Fort MacArthur Upper Reservation ROI, which is below the significance criteria of three percent. Therefore, it would be consistent with the SCAG Growth Management Plan. The increase in population would not cause an increase in government expenditures, nor would it cause the government to lose revenue. Existing economic activity would not be displaced or terminated. Therefore, no significant adverse impacts associated with the population increase would result.

4.12.4.2 Housing

The proposed increase in housing would be up to 96 units. This housing would be for military use only. Development of the proposed housing units would be controlled by stringent Air Force building codes, which are comparable to those used by the City of Los Angeles. The Fort MacArthur Upper Reservation housing site could be returned to LAUSD at the end of the lease.

Local housing prices are higher than the average for Los Angeles County. The proposed new housing at Fort MacArthur Upper Reservation would not increase land values and housing costs above the purchasing power of local residents. The proposed new housing would also have no effect on local housing prices, because it would be owned by the Federal government and physically separated from surrounding residential areas. Thus, no significant deterioration of local land values or housing costs are expected.

The proposed new housing at Fort MacArthur Upper Reservation would not result in social instability because neighborhoods would not be disrupted or divided. It would not displace any residents. However, the new housing would displace some LAUSD buildings which would be relocated by LAUSD. For these reasons, no significant adverse impacts to housing are expected.

4.12.4.3 Employment

New employment demands, beyond those required for construction, would not be generated by the proposed new housing. Temporary employees required for construction would come from within Los Angeles County, and probably from within the South Bay area, close to the Fort MacArthur Upper Reservation. Personnel moving into the housing complex would be active military and dependents, and would not require local employment. However, some of the military spouses and/or dependents may seek local employment. It is estimated that up to 50 spouses and/or dependents occupying the proposed housing would pursue part- or full-time employment in the Los Angeles region. If all of these persons were to seek employment within the Fort MacArthur Upper Reservation ROI (a worst-case scenario), it would represent approximately 1.6 percent of the total employment. This is below SCAG significance criteria of 5 percent (Minjares, 1994d). Many of these persons would seek employment beyond the boundaries of the ROI. Significant impacts to employment are not expected.

4.12.5 No Action Alternative

Under the No Action Alternative, the proposed new housing would not be developed at the White Point, Montgomery, or Fort MacArthur Upper Reservation sites. Active Air Force military personnel not housed in military housing receive a housing allowance to rent in the area. The No Action Alternative would result in a continuation of rental/lease income to the communities where Air Force personnel rent or lease housing. Under the No Action Alternative, LAAFB would not be able to fulfill its projected housing deficit.

4.12.6 Cumulative Impacts

The proposed new Air Force housing would not result in cumulative impacts to socioeconomics, relative to any past, present, or reasonably foreseeable future project.

4.12.7 Unavoidable Adverse Impacts

The increase in population and housing are unavoidable impacts associated with the White Point, Montgomery, or Fort MacArthur Upper Reservation Alternatives. However, the project-related increases would not be significant.

4.12.8 Mitigation Measures

No mitigation measures are required for the Proposed Action or any alternatives.

CHAPTER 5

LONG-TERM IMPLICATIONS OF THE PROPOSED ACTION AND ALTERNATIVES

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LONG-TERM IMPLICATIONS OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter presents the environmental effects of the Proposed Action and alternatives with respect to cumulative impacts, unavoidable adverse impacts, relationship between local short-term use of the environment and the maintenance of long-term productivity, irreversible and irretrievable commitments of resources, growth inducement, and considerations that offset environmental impacts.

5.1 CUMULATIVE IMPACTS

Cumulative impacts are the aggregation of environmental impacts that would result from the Proposed Action and any past, planned and/or reasonably foreseeable future actions in the project area. The assumption used in the project traffic analysis was based on LADOT input that there are no known future projects planned in the area with major traffic-generating significance. There are no planned or foreseeable future actions with considerable environmental impacts planned for the White Point Navy housing area by the City of Los Angeles or other entities. This was used as the basis for the evaluation of cumulative impacts in this EA.

The potential for cumulative impacts is discussed within each subchapter of Chapter 4, Environmental Consequences, of this EA. Most of the identified cumulative impacts are either not significant or can be mitigated to a level of insignificance. The following cumulative impacts in the areas of air quality, noise and biological resources cannot be mitigated to a level of insignificance.

(1) Construction of any other project(s) in the vicinity would result in combustion emissions. If these emissions occurred in the same time frame as construction activities at White Point or any alternative site, this would result in a temporarily worsening of cumulative air pollutant emissions and potentially result in the threshold being exceeded. Other criteria air contaminants may also cumulatively exceed the threshold levels as a result of several construction projects occurring concurrently in the same local area.

(2) The combination of air pollutant emissions from White Point or an alternative and potential emissions from a future related project may result in significant operational impacts for some air contaminants on a cumulative basis within the project region. However, it should be noted that any future projects would

potentially contribute to cumulative adverse air quality impacts, regardless of implementation of the Proposed Action.

(3) Increase in surface traffic as a result of the Proposed Action or an alternative would result in a cumulative noise impact. Noise mitigation measures for surface traffic could not be effectively applied at the affected sensitive receptors. However, the noise standard would be exceeded in bordering residential areas even without the implementation of the Proposed Action at the White Point or at any of alternative sites.

(4) Development of the proposed new housing at either White Point or an alternative site would remove or damage existing biological resources. The loss of this resource would cumulatively contribute to ongoing losses from increased development in the region.

5.2 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are discussed within each subchapter of Chapter 4, Environmental Consequences, of this EA. The following impacts would result from implementation of the Proposed Action or the alternatives. These impacts would be unavoidable because mitigation measures are not available.

(1) The use of the vacant 8 acres south of the existing White Point Navy housing area represents a loss of open space. This area was not designated for future open space. Therefore, it does not conflict with any planning objectives for the area. This conversion of open space to residential use is unavoidable, but is not considered a significant impact.

(2) Temporary adverse visual impacts would occur during the construction period of the Proposed Action or any alternative. These impacts are temporary and are not considered significant.

(3) Short-term, unavoidable air quality impacts would result from construction activity on a worst-case day basis. These impacts would be temporary and would vary, depending on the continued daily operation of construction equipment. These emissions are not considered significant.

(4) Increased noise levels from surface traffic, construction and occupation of the housing area are unavoidable. Effective mitigation measures for the increased traffic are not available. The incremental increase in noise attributed to the project would not be considered significant.

(5) Proposed housing construction and earthmoving activities would adversely affect plant and animal species now living on, or frequenting, White Point or any of the alternative sites. Vegetation and some animal species on these sites would be permanently removed. The loss of vegetation would potentially result in limitation and loss of floral and faunal species diversity at either site

and in the region. The loss of foraging, roosting, nesting, and denning areas at these sites would be unavoidable but is not considered significant.

(6) In the event that the Alma Street access is used as the main access to and from the proposed housing area on the Fort MacArthur Upper Reservation, an unavoidable adverse impact to a segment of a local residential street (Alma Street from the project access at Meade Drive north to 25th Street) would occur. The only mitigation available for this unavoidable impact would be to restrict access at Alma Street, allowing it to serve as an emergency access only.

(7) A permanent alteration of topography would result from earthmoving required for construction of proposed MFH at the White Point site. This alteration is unavoidable given the site layout and number of proposed housing units that are required. However, since the existing site has been extensively altered due to past construction, and a minimum of additional alteration is required, topographic alteration is not considered to be a significant adverse impact at that site.

(8) At the Fort MacArthur Upper Reservation site, existing slope instability in the area below the Barlow-Saxton Road is considered unavoidable. This area is privately owned, and outside of the boundaries of the housing site. Engineering controls would be implemented to prevent slope failure related to construction activities. However, risk of damage to the road and proposed improvements from existing slope instability cannot be eliminated. Slope stabilization measures would be incorporated into project design and construction to reduce the probability for slope failure in this area, however, damage to the access road from slope instability is possible. This unavoidable impact is not considered significant.

5.3 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

Development of Air Force housing at White Point does not represent a significant loss of open space. The White Point housing site is currently developed with residential uses on 16.4 acres. The Proposed Action would result in a intensification of land use on the White Point 8-acre undeveloped site. The 8-acre parcel was not planned for use as open space. Therefore, the Proposed Action would not result in any cumulative land use or aesthetic impacts. Long-term productivity of this site would be increased by the development of the housing area.

5.4 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The irreversible environmental changes which would result from implementation of the Proposed Action involve the consumption of material resources, energy, land, biological habitat and human resources. The use of these resources is considered to be permanent.

5.4.1 Material Resources

Material resources utilized for the Proposed Action include residential building materials for construction of the housing units, asphalt for roads, and various material supplies for infrastructure. Most of the materials which would be expended are not in short supply, and are readily available from suppliers in the region. Their use for the Proposed Action would not limit other unrelated construction activities, and therefore, would not be considered significant.

5.4.2 Energy Resources

Energy resources utilized for the Proposed Action would be irretrievably lost. These include petroleum-based products (such as gasoline and diesel fuel), natural gas, and electricity. During construction, gasoline and diesel would be used for operation of construction vehicles. During occupancy of the housing units, gasoline would be used for operation of private and government-owned vehicles. Natural gas and electricity would be used by occupants of the housing. Consumption of these energy resources would not place any significant demand on their availability in the region, and no significant impacts are expected.

5.4.3 Land

Implementation of the Proposed Action would result in approximately 8 acres of land at White Point being converted into housing units and supporting infrastructure. The area could be returned to its former open space uses if housing units and other structures are removed. However, this is considered unlikely. The loss of open space is not considered irreversible.

5.4.4 Biological Habitat

The Proposed Action would result in the irreversible destruction or loss of vegetation and wildlife habitat on the 8-acre White Point site (see Chapter 4.10, Biological Resources). No threatened or endangered species would be affected. Therefore, impacts would not be considered significant.

5.4.5 Human Resources

The use of human resources for construction and operation is considered an irretrievable loss, in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for this action represents employment opportunities, and is considered beneficial.

5.5 GROWTH INDUCEMENT

The Proposed Action is being implemented to meet the projected housing deficit for military members of the Air Force and their families. This action is not expected to result in the need for additional services or housing in the community. The construction phase would not require the relocation of permanent workers or an associated increase in the demand for additional housing. The increase in population that would result from full buildout of 96 units would represent a population growth of up to 1.8 percent in the Region of Influence for the White Point or alternative site areas. This growth is below the significance criteria for growth inducement identified by SCAG as three percent. For these reasons, no significant growth inducing impacts are expected.

CHAPTER 6

REFERENCES

CHAPTER 6

REFERENCES

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CHAPTER 7

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CHAPTER 7

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CHAPTER 8

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CHAPTER 8

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Edwards, John (SMC/AXFV)	Environmental Management	20 yr. Environmental Management and NEPA Analysis	Government Acceptance
8.2 Parsons Engineering Science			
Carter, Susan	Biology/Ecology	14 yr. Biological Resource Analysis	Biological Resources
Coronel, Raine	Environmental Science and Industrial Hygiene	4 yr. Environmental Science and Industrial Hygiene	Hazardous Materials and Hazardous Waste Management; Air Quality; Environmental Baseline Survey
Crisologo, Rosemarie	Biological Sciences/ Environmental Engineering	16 yr. Environmental Science	Project Manager
Eckert, Jim	Biology/Ecology	14 yr. Environmental Science and NEPA documentation	Biological Resources

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Hale, Marlund, Ph.D.	Noise Control Engineering	25 yr. Noise Control Engineering	Noise; Technical Review
Hannah, Pamela	Traffic Engineering	12 yr. Traffic Engineering	Transportation
Jue, Kendall	Environmental Impact Assessment	15 yr. Environmental Studies and Traffic Impact Analysis	Transportation
Luptowitz, Lisa	Environmental Science	4 yr. Environmental Science	Soils and Geology; Cultural Resources
McNairy, Louis	Biology/Water Quality	22 yr. Environmental Science	Deputy Project Manager
Merrill, Nina	Biology/Ecology	5 yr. Environmental Science	Biological Resources
Mitchell, Thomas, P.E.	Traffic Engineering	24 yr. Traffic Engineering	Transportation
Officer, Jay	Water Science/ Biological Sciences	16 yr. Water Quality Analysis and Inspection	Water Quality
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APPENDIX A

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(AF-813 on file at SMC/AXFC)

APPENDIX B

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE

APPENDIX C

DISTRIBUTION LIST
FOR THE ENVIRONMENTAL ASSESSMENT

APPENDIX C

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D. Local Agencies (Continued)

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Honorable Barbara Boxer
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Honorable Diane Feinstein
Senator, State of California
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Western Regional Office
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California Native Plant Society
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Torrance, CA 90503

Donna Littlejohn
San Pedro News Pilot (Copley)
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San Pedro, CA 90731

Liz Amstutz, Editor
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APPENDIX D

TRAFFIC DATA AND DIAGRAMS

APPENDIX D

TRAFFIC DATA AND DIAGRAMS

APPENDIX D

TRAFFIC DATA AND DIAGRAMS (Continued)

Table D-1 - Traffic Data Used for the Noise Analysis

White Point										
					Year 1997					
Arterial/Segment	**Assumed # Lanes**	**Assumed Speed (mph)**	**Existing Evening Pk-Hr**	**Existing 24-Hr ADT**	**Year 1997 Evening Pk-Hr**	**Year 1997 24-Hr ADT**	**Project Evening Pk-Hr**	**Project 24-Hr ADT**	**Cumulative Evening Pk-Hr**	**Year 1997 Cumulative 24-Hr ADT**
9th Street										
W of Gaffey Street	2	35	737	8,189	752	8,356	5	56	757	8,411
22nd Street										
E of Gaffey Street	2	25	525	5,833	537	5,967	4	44	541	6,011
W of Pacific Avenue	2	25	439	4,878	449	4,989	4	44	453	5,033
25th Street										
W of Gaffey Street	2	35	888	9,867	906	10,067	82	911	988	10,978
W of Alma Street	2	35	928	10,311	947	10,522	86	956	1,033	11,478
E of Alma Street	2	35	979	10,878	1,000	11,111	82	911	1,082	12,022
W of White's Point Drive	2	35	1,226	13,622	1,250	13,889	6	67	1,256	13,956
E of White's Point Drive	2	35	1,086	12,067	1,108	12,311	86	956	1,194	13,267
W of Western Avenue	2	35	1,582	17,578	1,615	17,944	3	33	1,618	17,978
E of Western Avenue	2	35	1,232	13,689	1,257	13,967	10	111	1,267	14,078
I-110										
E of Gaffey Street	6	55	3,602	40,022	3,672	40,800	70	778	3,742	31,578
Gaffey Street										
S of Summerland Avenue	4	35	1,604	17,822	1,637	18,189	3	33	1,640	18,222
N of I-110	4	35	1,603	18,111	1,662	18,467	3	33	1,665	18,500
S of I-110[a]	4	35	4,870	54,111	4,966	55,178	73	811	5,039	55,989
N of 1st Street[a]	4	35	4,599	51,100	4,689	52,100	73	811	4,762	52,911
S of 1st Street[a]	4	35	3,385	37,611	3,451	38,344	73	811	3,524	39,156
N of 7th Street	4	35	3,023	33,589	3,083	34,256	73	811	3,156	35,067
S of 7th Street	4	35	2,772	30,800	2,828	31,422	73	811	2,901	32,233
N of 9th Street	4	35	2,721	30,233	2,775	30,833	73	811	2,848	31,644
S of 9th Street	4	35	2,489	27,656	2,539	28,211	78	867	2,617	29,078
N of 22nd Street	4	35	1,407	15,633	1,436	15,956	78	867	1,514	16,822
S of 22nd Street	4	35	1,363	15,144	1,391	15,456	82	911	1,473	16,367
N of 25th Street	4	35	1,278	14,200	1,304	14,489	82	911	1,386	15,400
Alma Street										
N of 22nd Street	2	35	153	1,700	155	1,722	4	44	159	1,767
S of 22nd Street	2	35	152	1,689	154	1,711	4	44	158	1,756
N of 25th Street	2	35	262	2,911	268	2,978	4	44	272	3,022
Pacific Avenue										
N of 22nd Street	4	35	1,018	11,311	1,039	11,544	4	44	1,043	11,589
Summerland Avenue										
E of Gaffey Street	2	30	1,052	11,689	1,073	11,922	3	33	1,076	11,956
Whites Point Drive										
S of 25th Street	2	25	111	1,233	113	1,256	3	33	116	1,289
Western Avenue										

N of 25th Street	4	45	1,585	17,611	1,617	17,967	3	33	1,620	18,000
S of 25th Street	4	45	589	6,544	601	6,678	3	33	604	6,711

Table D-1 (Cont'd)

Montgomery Housing										
					Year 1997					
Arterial/Segment	**Assumed # Lanes**	**Assumed Speed (mph)**	**Existing Evening Pk-Hr**	**Existing 24-Hr ADT**	**Year 1997 Evening Pk-Hr**	**Year 1997 24-Hr ADT**	**Project Evening Pk-Hr**	**Project 24-Hr ADT**	**Cumulative Evening Pk-Hr**	**Year 1997 Cumulative 24-Hr ADT**
1st Street										
W of Figueroa Street	2	30	868	9,644	885	9,833	5	56	890	9,889
E of Figueroa Place	2	30	1,398	15,533	1,425	15,833	9	100	1,434	15,933
Anaheim Street										
W of Figueroa Street	4	35	2,228	24,756	2,273	25,256	5	56	2,278	25,311
W of Figueroa Place	4	35	2,515	27,944	2,565	28,500	14	156	2,579	28,656
E of Figueroa Place	4	35	2,222	24,689	2,266	25,178	5	56	2,271	25,233
E of Vermont Avenue	4	35	2,308	25,644	2,353	26,144	14	156	2,367	26,300
Palos Verdes Drive North										
W of Western Avenue	6	45	2,676	29,733	2,723	30,255	5	56	2,728	30,311
John Montgomery Drive										
E of Western Avenue	2	25	88	978	89	989	53	589	142	1,578
Westmont Drive										
W of Gaffey Street	4	35	836	9,289	853	9,478	43	478	896	9,956
Figueroa Street										
S of 1st Street	4	35	1,186	13,178	1,210	13,444	5	56	1,215	13,500
N of Anaheim Street	4	35	1,064	11,822	1,085	12,056	5	56	1,090	12,111
Figueroa Place										
S of 1st Street	2	25	1,364	15,156	1,391	15,456	9	100	1,400	15,556
N of Anaheim Street	2	25	1,282	14,244	1,307	14,522	9	100	1,316	14,622
Gaffey Street										
N of Anaheim Street	4	45	1,560	17,333	1,591	17,678	16	178	1,607	17,856
S of Anaheim Street	4	45	1,382	15,356	1,410	15,667	39	433	1,449	16,100
N of Westmont Drive	4	45	1,346	14,956	1,373	15,256	39	433	1,412	15,689
S of Westmont Drive	4	45	1,712	19,022	1,746	19,400	4	44	1,750	19,444
Western Avenue										
N of Palos Verdes Drive N	4	35	1,695	18,833	1,723	19,144	43	478	1,766	19,622
S of Palos Verdes Drive N	4	35	2,777	30,856	2,816	31,288	48	533	2,864	31,822
N of John Montgomery Drive	4	35	2,800	31,111	2,854	31,711	48	533	2,902	32,244
S of John Montgomery Drive	4	35	2,720	30,444	2,795	31,056	5	56	2,800	31,111

Table D-1 (Cont'd)

Fort MacArthur Upper Reservation																
					Gaffey Street Access						Alma Street Access					
Arterial/Segment	**Assumed # Lanes**	**Assumed Speed (mph)**	**Existing Evening Pk-Hr**	**Existing 24-Hr ADT**	**Year 1997 Evening Pk-Hr**	**Year 1997 24-Hr ADT**	**Project Evening Pk-Hr**	**Project 24-Hr ADT**	**Year 1997 Cumulative Evening Pk-Hr**	**Year 1997 Cumulative 24-Hr ADT**	**Project Evening Pk-Hr**	**Project 24-Hr ADT**	**Year 1997 Cumulative Evening Pk-Hr**	**Year 1997 Cumulative 24-Hr ADT**	**Year 1997 Evening Pk-Hr**	**Year 1997 24-Hr ADT**
9th Street																
W of Gaffey Street	2	35	737	8,189	752	8,356	5	56	757	8,411	5	56	757	8,411	752	8,356
22nd Street																
E of Gaffey Street	2	25	525	5,833	537	5,967	4	44	541	6,011	4	44	541	6,011	537	5,967
W of Pacific Avenue	2	25	439	4,878	449	4,989	4	44	453	5,033	4	44	453	5,033	449	4,989
25th Street																
W of Gaffey Street	2	35	888	9,867	906	10,067	9	100	915	10,167	82	911	988	10,978	906	10,067
W of Alma Street	2	35	928	10,311	927	10,300	8	89	935	10,389	5	56	932	10,356	927	10,300
E of Alma Street	2	35	979	10,878	1,000	11,111	9	100	1,009	11,211	82	911	1,082	12,022	1,000	11,111
32nd Street																
E of Gaffey Street	2	25	100	1,111	102	1,133	3	33	105	1,167	0	0	102	1,133	102	1,133
Meade Drive																
E of Alma Street	2	25	7	78	7	78	0	0	7	78	96	1067	103	1,144	7	78
I-110																
E of Gaffey Street	6	55	3,602	40,022	3,672	40,800	70	778	3,742	41,578	70	778	3,742	41,578	3,672	40,800
Gaffey Street																
S of Summerland Avenue	4	35	1,604	17,822	1,637	18,189	3	33	1,640	18,222	3	33	1,640	18,222	1,637	18,189
N of I-110	4	35	1,630	18,111	1,662	18,467	3	33	1,665	18,500	3	33	1,665	18,500	1,662	18,467
S of I-110[a]	4	35	4,870	54,111	4,966	55,178	73	811	5,039	55,989	73	811	5,039	55,989	4,966	55,178
N of 1st Street[a]	4	35	4,599	51,100	4,689	52,100	73	811	4,762	52,911	73	811	4,762	52,911	4,689	52,100

S of 1st Street[a]	4	35	3,385	37,611	3,451	38,344	73	811	3,524	39,156	73	811	3,524	39,156	3,451	38,344
N of 7th Street	4	35	3,023	33,589	3,083	34,256	73	811	3,156	35,067	73	811	3,156	35,067	3,083	34,256

Table D-1 (Cont'd)

Fort MacArthur Upper Reservation																
					Gaffey Street Access						Alma Street Access					
Arterial/ Segment	Assumed # Lanes	Assumed Speed (mph)	Existing Evening Pk-Hr	Existing 24-Hr ADT	Year 1997 Evening Pk-Hr	Year 1997 24-Hr ADT	Project Evening Pk-Hr	Project 24-Hr ADT	Year 1997 Cumulative Evening Pk-Hr	Year 1997 Cumulative 24-Hr ADT	Project Evening Pk-Hr	Project 24-Hr ADT	Year 1997 Cumulative Evening Pk-Hr	Year 1997 Cumulative 24-Hr ADT	Year 1997 Evening Pk-Hr	Year 1997 24-Hr ADT
Gaffey Street																
S of 7th Street	4	35	2,772	30,800	2,828	31,422	73	811	2,901	32,233	73	811	2,901	32,233	2,828	31,422
N of 9th Street	4	35	2,721	30,233	2,775	30,833	73	811	2,848	31,644	73	811	2,848	31,644	2,775	30,833
S of 9th Street	4	35	2,489	27,656	2,539	28,211	78	867	2,617	29,078	78	867	2,617	29,078	2,539	28,211
N of 22nd Street	4	35	1,407	15,633	1,436	15,956	78	867	1,514	16,822	78	867	1,514	16,822	1,436	15,956
S of 22nd Street	4	35	1,363	15,144	1,391	15,456	82	911	1,473	16,367	82	911	1,473	16,367	1,391	15,456
N of 25th Street	4	35	1,278	14,200	1,304	14,489	82	911	1,386	15,400	82	911	1,386	15,400	1,304	14,489
S of 25th Street	2	35	766	8,511	782	8,689	91	1,011	873	9,700	29	322	811	9,011	782	8,689
N of 32nd Street	2	35	447	4,967	487	5,411	91	1,011	578	6,422	0	0	487	5,411	487	5,411
S of 32nd Street	2	35	394	4,378	401	4,456	5	56	406	4,511	0	0	401	4,456	401	4,456
N of Leavenworth Drive	2	35	393	4,367	401	4,456	5	56	406	4,511	0	0	401	4,456	401	4,456
S of Leavenworth Drive	2	35	351	3,900	357	3,967	5	56	362	4,022	0	0	357	3,967	357	3,967
Alma Street																
N of 22nd Street	2	35	153	1,700	155	1,722	4	44	159	1,767	4	44	159	1,767	155	1,722
S of 22nd Street	2	35	152	1,689	154	1,711	4	44	158	1,756	4	44	158	1,756	154	1,711
N of 25th Street	2	35	262	2,911	268	2,978	4	44	272	3,022	4	44	272	3,022	268	2,978
S of 25th Street	2	35	121	1,344	125	1,389	0	0	125	1,389	91	1,011	216	2,400	125	1,389
N of Meade Drive	2	35	124	1,378	126	1,400	0	0	126	1,400	91	1,011	217	2,411	126	1,400
S of Meade Drive	2	35	119	1,322	121	1,344	0	0	121	1,344	5	56	126	1,400	121	1,344
Pacific Avenue																
N of 22nd Street	4	35	1,018	11,311	1,039	11,544	4	44	1,043	11,589	4	44	1,043	11,589	1,039	11,544
Summerland Avenue																
E of Gaffey Street	2	30	1,052	11,689	1,073	11,922	3	33	1,076	11,956	3	33	1,076	11,956	1,073	11,922

mph miles per hour
Pk-Hr Peak hour of greatest vehicular traffic volume
ADT average daily traffic
[a] ADT volumes exceed the level-of-service C traffic volume of 38,000 for this arterial segment; therefore the level-of-service C traffic volume was used for the noise analysis to produce the worst-case noise impacts.
Note: Arterials that would not experience an increase in traffic volume associated with the project were not evaluated

APPENDIX E

CLEAN AIR ACT CONFORMITY ANALYSIS

APPENDIX E

CLEAN AIR ACT CONFORMITY ANALYSIS

E.1 PURPOSE

The Air Force is required to conduct a conformity analysis to determine whether the proposed construction and operation of new military family housing for Los Angeles Air Force Base (AFB), California, complies with the conformity requirements of the Clean Air Act (CAA) Section 176(c). As specified by the proposed action, a total of 96 new Air Force family housing units would be constructed an occupied at the site of existing U.S. Navy housing area at White Point, in the community of San Pedro, Los Angeles County, California.

E.2 BACKGROUND

The United States Environmental Protection Agency (USEPA) has promulgated regulations clarifying the applicability of and procedures for ensuring that Federal activities comply with the CAA. The USEPA Final General Conformity Rule, 40 CFR 93, subpart B (for Federal agencies), and 40 CFR 51, subpart W (for state requirements), implements Section 176(c) of the CAA, as amended in 42 U.S.C. 7506(c). This rule was published in the Federal Register on November 30, 1993, and took effect on January 31, 1994. The USEPA Final Conformity Rule requires all Federal agencies to ensure that any agency activity conforms with an approved or promulgated state implementation plan (SIP) or Federal implementation plan (FIP). Conformity means compliance with a SIP or FIP for the purpose of attaining or maintaining the national ambient air quality standards (NAAQS). Specifically, this means ensuring the Federal activity does not: 1) cause a new violation of the NAAQS; 2) contribute to an increase in the frequency or severity of violations of existing NAAQS; or 3) delay the timely attainment of any NAAQS, interim milestones, or other milestones to achieve attainment. The Final General Conformity Rule only applies to those Federal actions in designated nonattainment or maintenance areas.

The six criteria pollutants for which the NAAQS were established are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur oxides (SO_X, measured as sulfur dioxide, SO_2), particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}), and lead (Pb). Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered as an air pollutant when calculating emissions because O_3 is typically not emitted directly from most emissions sources. O_3 is formed in the atmosphere by photochemical reactions involving previously emitted pollutants or ozone precursors. Ozone precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) which are directly emitted from various emission sources. For this reason, an attempt is made to control O_3 through the control of NO_x and VOCs.

The USEPA Final Conformity Rule requires that total direct and indirect emissions of nonattainment criteria pollutants, including ozone precursors, or pollutants for which an area has been redesignated as attainment (maintenance area) be considered in determining conformity. The rule does not apply to actions where the total direct and indirect emissions of pollutants do not exceed de minimis threshold levels for criteria pollutants and ozone precursors established in 40 CFR 93.153(b). Ongoing activities currently being conducted are exempt from the rule so long as there is no increase in emissions above the de minimis levels as the result of the Federal action. Tables E-1 and E-2 present the de minimis threshold levels for nonattainment and maintenance areas, respectively.

In addition to meeting de minimis requirements, Federal actions must not be considered regionally significant. A Federal action would be considered regionally significant when the total emissions from the proposed action equal or exceed 10 percent of the nonattainment area's emissions inventory for any nonattainment or maintenance area air pollutant. If a Federal action meets de minimis requirements and is not considered a regionally significant action, then it is exempt from the requirement to prepare a formal conformity determination.

E.3 STATUS

The community of San Pedro is located in Los Angeles County within the South Coast Air Basin. The Basin includes Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The state of California has established separate air pollution control authorities responsible for enforcing federal, state and local air pollution standards, laws and regulations within the state. The state agency responsible for air quality within the project region is South Coast Air Quality Management District (SCAQMD).

The USEPA has designated the air quality within the project region as better than the NAAQS for SO_2; unclassifiable for Pb; serious nonattainment for PM_{10} and CO; and extreme nonattainment for O_3.

E.4 AIR POLLUTANT EMISSIONS CALCULATIONS

Air pollutant emissions from construction and operation of the Proposed Action to develop new military family housing were determined on a daily and annual basis. The following sections present the methodology and assumptions used to calculate air emissions associated with the proposed action and alternatives.

Table E-1

De Minimis Thresholds in Nonattainment Areas

Criteria Pollutant	Degree of Nonattainment	De Minimis Level (tpy)
Ozone (VOCs and NO_X)	Serious	50
	Severe	25
	Extreme	10
	Other ozone nonattainment areas outside of ozone transport region	100
Volatile Organic Compounds	Marginal or moderate nonattainment within ozone transport region	50
Nitrogen Dioxides (NO_2)	Marginal or moderate nonattainment within ozone transport region	100
Carbon Monoxide (CO)	All	100
Particulate Matter (PM_{10})	Moderate	100
	Serious	70
Sulfur Dioxide (SO_2)	All	100
Lead (Pb)	All	25
Source: 40 CFR 93.153(b)(1) tpy - tons per year		

Table E-2

De Minimis Thresholds for Maintenance Areas

Criteria Pollutant	Maintenance Area	De Minimis Level (tpy)
Ozone (NO_X), SO_2, NO_2	All maintenance areas	100
Volatile Organic Compounds	Maintenance area inside an ozone transport region	50
	Maintenance area outside an ozone transport region	100
Carbon Monoxide (CO)	All maintenance areas	100
Particulate Matter (PM_{10})	All maintenance areas	100
Lead (Pb)	All maintenance areas	25
Source: 40 CFR 93.153(b)(2) tpy - tons per year		

E.4.1 Construction Equipment Exhaust Emissions

Air pollutant emissions during construction would be generated from the operation of various construction equipment during site preparation, demolition, house construction and roadway construction.

The EPA has developed emission factors for calculating construction equipment exhaust emissions based on the hours of use for each piece of equipment (EPA, 1985b). Emission factors for construction equipment are shown on Table E-3.

Air pollutant emissions for each phase of construction were determined using the formula:

No. of Construction Equipment		Operation (hr/day or miles traveled/day)		Emission Factor from Table E-3 (lb/hr or lb/mile)		Emission Rate (lb/day)
	x		x		=	

For example, during site preparation it is estimated that the two backhoes would operate for 6 hours each day. The estimated air pollutant emissions would be:

2 backhoes x 6 hours/day x 0.436 lb CO/hr = 5.232 lb CO/hr
2 backhoes x 6 hours/day x 0.160 lb ROC/hr = 1.192 lb ROC/hr
2 backhoes x 6 hours/day x 2.010 lb NO_x/hr - 24.12 lb NO_x/hr
2 backhoes x 6 hours/day x 0.133 SO_x/hr = 1.596 lb. SO_x/hr
2 backhoes x 6 hours/day x 0.143 PM_{10}/hr = 1.716 lb PM_{10}/hr

Hourly air pollutant emissions for site preparation, demolition, house construction and roadway construction are shown on Tables E-4 through E-7, respectively.

E.4.2 Construction Dust Emissions

PM_{10} emissions are generated during preparation of a construction site as a result of ground disturbance (groundbreaking, drilling, etc.) as well as dirt and aggregate spreading or loading from cut and fill activities. According to the USEPA, PM_{10} emissions for a construction project are proportional to the amount of land being prepared and the duration of the construction activities. To calculate dust emissions, the EPA recommends an emission factor of 1.2 tons of total suspended particulate (TSP) per acre per month, or 80 pounds per acre per day. TSP includes all suspended particulate fractions of the dust. To determine PM_{10} emissions, it is necessary to convert TSP to PM_{10}. For construction projects, the average PM_{10} to TSP ratio is approximately 0.24 pounds of PM_{10} per pound of TSP. Thus, the PM_{10} emission factor for construction dust emissions is 19.2 pounds per acre per day.

Under the proposed action, the area disturbed during construction of the housing (with associated roads) was estimated using the footprints of the houses and facilities and the area of the roads as provided by the Air Force. The disturbed area for construction activities associated with the proposed action is estimated to be approximately 24 acres.

Table E-3

Criteria Air Pollutant Emission Factors for Construction Equipment

Equipment Type		Units	CO	ROC	NO_X	SO_X	PM_{10}	Factor Source
Backhoe		lb/hr	3.59	0.218	1.269	0.09	0.136	AP-42, Table II-7.1
Bituminous Paver		lb/hr	0.675	0.183	1.691	0.143	0.139	AP-42, Table II-7.1
Bituminous Spreader		lb/hr	0.675	0.183	1.691	0.143	0.139	AP-42, Table II-7.1
Compactor		lb/hr	0.304	0.083	0.862	0.067	0.050	AP-42, Table II-7.1
Concrete Floor Finisher		lb/hr	0.675	0.183	1.691	0.143	0.139	AP-42, Table II-7.1
Concrete Pump Machine		lb/hr	0.011	0.002	0.018	0.002	0.001	SCAQMD, Table A9-8-A
Dump Truck		lb/mi	0.041	0.010	0.034	0.000	0.007	CARB E7EPSCF
Flat-bed Truck		lb/mi	0.041	0.010	0.034	0.000	0.007	CARB E7EPSCF
Forklift (175 hp)		lb/hr	0.520	0.170	1.540	0.000	0.093	SCAQMD, Table A9-8-A
Front-end Loader		lb/hr	0.572	0.291	1.890	0.182	0.172	AP-42, Table II-7.1
Grader		lb/hr	0.151	0.052	0.713	0.086	0.061	AP-42, Table II-7.1
Hand Compactor		lb/hr	1.479	0.054	0.002	0.0006	0.0003	SCAQMD, Table A9-8-B
Hand Jackhammer		lb/hr	1.479	0.054	0.002	0.0006	0.0003	SCAQMD, Table A9-8-B
Heavy Maintenance Truck		lb/mi	0.041	0.010	0.034	0.000	0.007	CARB E7EPSCF
Nailing Gun		lb/hr	1.479	0.054	0.002	0.0006	0.0003	SCAQMD, Table A9-8-B
Pavement Breaker		lb/hr	0.43	0.16	2.01	0.13	0.14	AP-42, 3.3-1
Pavement Roller		lb/hr	0.304	0.083	0.862	0.067	0.050	AP-42, Table II-7.1
Pick-up Truck	Exh. & Evap.	gm/mi	9.87	0.87	5.26	NA	0.39	SCAQMD, A9-5-K-3
	Cold Start	gm/trip	41.93	2.55	1.97	NA	NA	SCAQMD, A9-5-K-3
	Hot Start	gm/trip	4.16	0.66	0.91	NA	NA	SCAQMD, A9-5-K-3
	Hot Soak	gm/trip	NA	0.87	NA	NA	NA	SCAQMD, A9-5-K-3
	Diurnal	gm/vh/day	NA	3.12	NA	NA	NA	SCAQMD, A9-5-K-3
Portable Generator		lb/hr	2.036	0.893	0.0006	0.0006	0.0085	SCAQMD, Table A9-8-B
Scraper		lb/hr	1.257	0.282	3.840	0.463	0.406	AP-42, Table II-7.1
Small Truck Crane		lb/mi	0.041	0.010	0.034	0.000	0.007	CARB E7EPSCF
Trenching Machine		lb/hr	0.675	0.183	1.691	0.143	0.139	AP-42, Table II-7.1
Water Truck (@40 mph)		lb/mi	0.041	0.010	0.034	0.000	0.007	CARB E7EPSCF
Worker Vehicles	Exh. & Evap.	gm/mi	3.03	0.17	0.48	NA	0.01	SCAQMD, A9-5-J-4
	Cold Start	gm/trip	74.82	4.11	2.40	NA	NA	SCAQMD, A9-5-J-4
	Hot Start	gm/trip	9.49	0.91	1.26	NA	NA	SCAQMD, A9-5-J-4
	Hot Soak	gm/trip	NA	0.94	NA	NA	NA	SCAQMD, A9-5-J-4
	Diurnal	gm/vh/day	NA	2.63	NA	NA	NA	SCAQMD, A9-5-J-4

Assumptions:

1. Construction worker vehicles, pick-up trucks, hand compactor/air compressor, hand jackhammer, portable generator and nailing gun are gasoline-powered; all other equipment is diesel-powered.
2. Electrical requirement is based on 300 kw/hr-day for all construction-related electrical equipment.
3. NA = Not applicable (no emissions factors are available).
4. Workday is 8 hours, 21 working days per month. It is assumed that individual equipment does not operate for the entire 8 hours on each workday.
5. AP-42 = Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources, published by U.S. Environmental Protection Agency (September 1985, Fourth Edition) and Supplement A (January 1991)
6. CARB - California Air Resources Board
7. E7EPSCF =
8. SCAQMD - South Coast Air Quality Management District (Air Quality Handbook, April 1993)
9. PM10 emission factors for worker vehicles, pick-up trucks, dump trucks, flat bed trucks, small cranes, and heavy maintenance trucks include tire wear and fugitive dust from travel.
10. Backhoe, front-end loader, trench machine and grader PM10 emission factors include exhaust emissions and fugitive dust from earth moving operations. Fugitive dust emission factor takes into account a 34% reduction from the use of water trucks.

CO - Carbon Monoxide
ROC - Reactive Organic Compounds
NOx - Nitrogen Oxides
SOx - Sulfur Oxides
PM_{10} - Particulate matter less than 10 microns in aerodynamic diameter

Table E-4

Maximum Daily Emissions from Site Preparation Construction-Related Equipment and Vehicle Usage (in lb/day)

Equipment	No. of Units	Hrs (or miles)/ day	Month Duration (or trips)	CO	ROG	NO_X	SO_X	PM_{10}
Backhoe	2	4	1	28.72	1.744	10.152	0.72	1.088
Compactor	1	4	2	1.216	0.332	3.448	0.268	0.2
Dump Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Flat-bed Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Forklift	1	4	1	2.08	0.68	6.16	0	0.372
Front-end Loader	2	5	1	5.72	2.91	18.9	1.82	1.72
Grader	1	6	1	0.906	0.312	4.278	0.516	0.366
Hand Compactor	2	6	1	17.748	0.648	0.024	0.0072	0.003
Hand Jackhammer	1	6	2	8.874	0.324	0.012	0.0036	0.0015
Heavy Maintenance Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Pavement Roller	1	4	4	1.216	0.332	3.448	0.268	0.2
Pick-up Truck Exh. & Evap.	2	(5)	6	0.217	0.019	0.116	NA	0.008
Cold Start	2	(5)	(3)	1.108	0.067	0.052	NA	NA
Hot Start	2	(5)	(3)	0.110	0.017	0.024	NA	NA
Hot Soak	2	(5)	(3)	NA	0.023	NA	NA	NA
Diurnal	2	(5)	(3)	NA	0.014	NA	NA	NA
Portable Generator	1	6	6	12.216	5.358	0.0036	0.0036	0.0507
Scraper	2	3	1	7.542	1.692	23.04	2.778	2.436
Small Truck Crane	1	4	4	0.16361	0.03921	0.13771	0	0.02793
Trenching Machine	1	4	4	2.7	0.732	6.764	0.572	0.556
Water Truck	1	(4)	6	0.16361	0.03921	0.13771	NA	0.02793
Worker Vehicles Exh. & Evap.	16	(25)	6	2.670	0.150	0.423	NA	0.004
Cold Start	16	(25)	(2)	5.274	0.290	0.169	NA	NA
Hot Start	16	(25)	(2)	0.669	0.064	0.089	NA	NA
Hot Soak	16	(25)	(2)	NA	0.066	NA	NA	NA
Diurnal	16	(25)	(2)	NA	0.000	NA	NA	NA
Total (max. lb/day)				96.44	16.17	79.70	6.96	7.59
SCAQMD Threshold (lb/day)				550	75	100	150	150
Monthly Emissions(lb/mo)				2,025.20	339.53	1,673.74	146.08	159.30
Monthly Emissions(ton/mo)				1.01	0.17	0.84	0.07	0.08

Table E-5

Maximum Daily Emissions from Demolition Construction-Related Equipment and Vehicle Usage (in lb/day)

Equipment	No. of Units	Hrs (or miles)/ day	Month Duration (or trips)	CO	ROG	NO_X	SO_X	PM_{10}
Backhoe	2	6	1	43.08	2.616	15.228	1.08	1.632
Compactor	1	0	2	1.216	0	3.448	0.268	0.2
Dump Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Flat-bed Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Forklift	1	6	1	3.12	1.02	9.24	0	0.558
Front-end Loader	2	2	1	2.288	1.164	7.56	0.728	0.688
Grader	1	0	1	0	0	0	0	0
Hand Compactor	2	0	1	0	0	0	0	0
Hand Jackhammer	1	4	2	5.916	0.216	0.008	0.0024	0.001
Heavy Maintenance Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Pavement Roller	1	0	4	0	0	0	0	0
Pick-up Truck Exh. & Evap.	2	(5)	6	0.217	0.019	0.116	NA	0.008
Cold Start	2	(5)	(3)	1.108	0.067	0.052	NA	NA
Hot Start	2	(5)	(3)	0.110	0.017	0.024	NA	NA
Hot Soak	2	(5)	(3)	NA	0.023	NA	NA	NA
Diurnal	2	(5)	(3)	NA	0.014	NA	NA	NA
Portable Generator	1	6	6	12.216	5.358	0.0036	0.0036	0.0507
Scraper	2	0	1	0	0	0	0	0
Small Truck Crane	1	2	4	0.08181	0.0196	0.06885	0	0.01396
Trenching Machine	1	0	4	0	0	0	0	0
Water Truck	1	(5)	6	0.20452	0.04901	0.17214	NA	0.03491
Worker Vehicles Exh. & Evap.	16	(25)	6	2.670	0.150	0.423	NA	0.004
Cold Start	16	(25)	(2)	5.274	0.290	0.169	NA	NA
Hot Start	16	(25)	(2)	0.669	0.064	0.089	NA	NA
Hot Soak	16	(25)	(2)	NA	0.066	NA	NA	NA
Diurnal	16	(25)	(2)	NA	0.093	NA	NA	NA
Total (max. lb/day)				75.30	11.47	38.93	2.08	3.72
SCAQMD Threshold (lb/day)				550	75	100	150	150
Monthly Emissions(lb/mo)				1,581.20	240.83	817.44	43.72	78.02
Monthly Emissions(ton/mo)				0.79	0.12	0.41	0.02	0.04

Table E-6

Maximum Daily Emissions from House Construction-Related Equipment and Vehicle Usage (in lb/day)

Equipment	No. of Units	Hrs (or miles)/ day	Month Duration (or trips)	CO	ROG	NO_X	SO_X	PM_{10}
Backhoe	2	4	1	28.72	1.744	10.152	0.72	1.088
Concrete Floor Finisher	1	5	2	2.7	0.732	6.764	0.572	0.556
Concrete Pump Machine	1	3	3	0.033	0.006	0.054	0.006	0.003
Dump Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Flat-bed Truck	1	(25)	2	1.02258	0.24504	0.86068	0	0.17456
Forklift	1	3	1	1.56	0.51	4.62	0	0.279
Front-end Loader	1	0	1	0	0	0	0	0
Hand Compactor	2	3	1	8.874	0.324	0.012	0.0036	0.0015
Nailing Gun	5	3	1	22.185	0.81	0.03	0.009	0.00375
Pick-up Truck Exh. & Evap.	2	(5)	6	0.009	0.004	0.044	NA	0.003
Cold Start	2	(5)	(3)	0.004	0.001	0.011	NA	NA
Hot Start	2	(5)	(3)	0.130	0.011	0.070	NA	NA
Hot Soak	2	(5)	(3)	NA	0.034	NA	NA	NA
Diurnal	2	(5)	(3)	NA	0.003	NA	NA	NA
Portable Generator	2	6	6	24.432	10.716	0.0072	0.0072	0.1014
Small Truck Crane	1	2	4	0.08181	0.0196	0.06885	0	0.01396
Trenching Machine	1	2	4	1.35	0.366	3.382	0.286	0.278
Worker Vehicles Exh. & Evap.	16	(25)	6	1.107	0.248	3.383	NA	0.358
Cold Start	16	(25)	(2)	0.003	0.001	0.002	NA	NA
Hot Start	16	(25)	(2)	0.048	0.013	0.119	NA	NA
Hot Soak	16	(25)	(2)	NA	0.001	NA	NA	NA
Diurnal	16	(25)	(2)	NA	0.006	NA	NA	NA
Water Truck	0	(0)	(0)	0	0	0	0	0
Total (max. lb/day)				93.23	16.02	30.32	1.60	3.03
SCAQMD Threshold (lb/day)				550	75	100	150	150
Monthly Emissions(lb/mo)				1,957.88	336.40	636.72	33.68	63.73
Monthly Emissions(ton/mo)				0.98	0.17	0.32	0.02	0.03

Table E-7

Maximum Daily Emissions from Roadway Construction-Related Equipment and Vehicle Usage (in lb/day)

Equipment	No. of Units	Hrs (or miles)/ day	Month Duration (or trips)	CO	ROG	NO_X	SO_X	PM_{10}
Backhoe	1	6	1	21.54	1.308	7.614	0.54	0.816
Bituminous Spreader	1	3	1	2.025	0.549	5.073	0.429	0.417
Bituminous Paver	1	3	1	2.025	0.549	5.073	0.429	0.417
Compactor	2	3	2	1.216	0.498	6.896	0.536	0.4
Dump Truck	1	(12)	2	0.49084	0.11762	0.41313	0	0.08379
Flat-bed Truck	1	(12)	2	0.49084	0.11762	0.41313	0	0.08379
Front-end Loader	2	1	1	1.144	0.582	3.78	0.364	0.344
Grader	1	2.5	1	0.3775	0.13	1.7825	0.215	0.1525
Hand Compactor	2	5	1	14.79	0.54	0.02	0.006	0.0025
Heavy Maintenance Truck	1	(12)	2	0.49084	0.11762	0.41313	0	0.08379
Pavement Breaker	1	3	2	1.29	0.48	6.03	0.39	0.42
Pavement Roller	1	3	4	0.912	0.249	2.586	0.201	0.15
Pick-up Truck Exh. & Evap.	2	(5)	6	0.065	0.006	0.035	NA	0.003
Cold Start	2	(5)	(3)	0.369	0.022	0.017	NA	NA
Hot Start	2	(5)	(3)	0.037	0.006	0.008	NA	NA
Hot Soak	2	(5)	(3)	NA	0.008	NA	NA	NA
Diurnal	2	(5)	(3)	NA	0.002	NA	NA	NA
Portable Generator	1	6	6	12.216	5.358	0.0036	0.0036	0.0507
Water Truck	1	(2)	6	0.08181	0.0196	0.06885	NA	0.01396
Worker Vehicles Exh. & Evap.	20	(25)	6	3.337	0.187	0.529	NA	0.006
Cold Start	20	(25)	(2)	6.592	0.362	0.211	NA	NA
Hot Start	20	(25)	(2)	0.836	0.080	0.111	NA	NA
Hot Soak	20	(25)	(2)	NA	0.083	NA	NA	NA
Diurnal	20	(25)	(2)	NA	0.116	NA	NA	NA
Total (max. lb/day)				62.90	10.85	40.76	3.11	3.44
SCAQMD Threshold (lb/day)				550	75	100	150	150
Monthly Emissions(lb/mo)				1,320.86	227.77	855.86	65.39	72.30
Monthly Emissions(ton/mo)				0.66	0.11	0.43	0.03	0.04

Construction activities for the proposed action would last approximately 20 months. The Air Force estimates that for approximately 6 months (96 days) would be required for site preparation and other activities which generate dust. Using this number, construction dust emissions for the proposed action are estimated with the following calculation:

19.2 pounds PM_{10}/acre-day x 24 acres x 96 days/yr x 1 ton/2,000 pounds = 22.1 tons/yr

For the Montgomery alternative, the total disturbed area would be 25 acres. Applying the same calculation used for the proposed action, the PM_{10} emissions from construction activities would be approximately 23.0 tons per year.

For the Fort MacArthur Upper Reservation alternative, the total area disturbed would be approximately 19.5 acres. Applying the same calculation used for the proposed action, the PM_{10} emissions from construction activities would be approximately 18.0 tons per year.

E.4.3 Consumption of Electricity

Construction activities would include the operation of electrical equipment. Air pollutant emissions that would result from consumption of electricity were calculated assuming a maximum electrical consumption of 300 kWh-day during construction. Emission factors and estimated emissions from electrical consumption are shown on Table E-8.

Table E-8

Emissions from Consumption of Electricity During Construction

	CO	ROG	NO_x	SO_x	PM_{10}
Emission Factor (lb/MWH)[a]	0.20	0.01	1.15	0.12	0.04
Emissions (lb/day)	0.6	0.03	3.45	0.36	0.12
[a] Source: SCAQMD, 1993 (Table A9-11-B)					

E.4.4 Summary of Construction Emissions

Table E-9 summarizes air pollutant emissions from each phase of construction.

E.5 ANALYSIS

For purposes of analysis, the construction phase and operation of the proposed action were analyzed separately.

E.5.1 Construction Phase

Fugitive dust from ground disturbing activities, combustive emissions from construction equipment, and emissions from asphalt paving operations would be generated during the construction of the proposed action. Four potential construction scenarios, each 12 months in duration, were screened to determine maximum annual air pollutant emissions. The estimated annual emissions of nonattainment pollutants from the proposed construction of new MFH under each 12-month scenario are presented in Table E-10.

Analysis of the data presented in Table E-10 indicates that the greatest emissions of pollutants would occur during the period of 12-months of housing construction. According to the levels presented in Table E-10, the de minimis threshold level for CO, ROG, NO_x and PM_{10} would not be exceeded during construction. Therefore, the proposed action meets both de minimis and regional significance requirements during the proposed construction phase.

Table E-9

Summary of Construction Emissions

Activity	Source	Emissions (lb/day)				
		CO	ROG	NOX	SOX	PM10
Site Preparation	Combustion/Equipment	96.44	16.17	79.70	6.96	7.59
	Construction Site Dust					138.25
	Electrical Consumption	0.6	0.03	3.45	0.36	0.12
Subtotal		97.04	16.20	83.15	7.32	145.96
Demolition	Combustion/Equipment	75.30	11.47	38.93	2.08	3.72
	Construction Site Dust					139.65
	Electrical Consumption	0.6	0.03	3.45	0.36	0.12
Subtotal		75.90	11.50	42.38	2.44	143.49
Housing Construction	Combustion/Equipment	93.23	16.02	30.32	1.60	3.03
	Construction Site Dust					95.50
	Electrical Consumption	0.6	0.03	3.45	0.36	0.12
Subtotal		93.83	16.05	33.77	1.96	98.65
Roadway Construction	Combustion/Equipment	62.90	10.85	40.76	3.11	3.44
	Construction Site Dust					70.80
	Electrical Consumption	0.6	0.03	3.45	0.36	0.12
Subtotal		63.50	10.88	44.21	3.47	74.36

Table D-10

Annual Construction-Related Air Pollutant Emissions Screening in Comparison to EPA Conformity De Minimis Levels

Activity	No. of Months	Emissions (tons)				
		CO	ROG	NOX	SOX	PM10
Site Preparation	4	4.08	0.68	3.49	0.31	6.13
Demolition	2	1.59	0.24	0.89	0.05	3.01
Housing Construction	6	5.63	0.96	2.03	0.12	5.92
Roadway Construction	0	0	0	0	0	0
Total	12	11.30	1.88	6.41	0.48	15.06
Site Preparation	4	4.08	0.68	3.49	0.31	6.13
Demolition	0	0.00	0.00	0.00	0.00	0.00
Housing Construction	8	7.51	1.28	2.70	0.16	7.89
Roadway Construction	0	0	0	0	0	0
Total	12	11.58	1.96	6.19	0.46	14.02
Site Preparation	0	0.00	0.00	0.00	0.00	0.00
Demolition	0	0.00	0.00	0.00	0.00	0.00
Housing Construction	12	11.26	1.93	4.05	0.24	11.84
Roadway Construction	0	0	0	0	0	0
Total	12	11.26	1.93	4.05	0.24	11.84
Site Preparation	0	0.00	0.00	0.00	0.00	0.00
Demolition	0	0.00	0.00	0.00	0.00	0.00
Housing Construction	11	10.32	1.77	3.71	0.22	10.85
Roadway Construction	1	0.67	0.11	0.46	0.04	0.78
Total	12	10.99	1.88	4.18	0.25	11.63
EPA Conformity De Minimis Level (tons/yr)		100	10	100	NA	70

E.5.2 Operational Phase

Operation emissions would consist primarily of vehicular activity. The primary vehicle type used during the proposed action and alternative would be privately-owned vehicles (POVs) used by Air Force personnel and family members. Other vehicles, such as trucks used for maintenance, would be used for infrequently and were assumed to contribute negligible emissions to the proposed action.

POVs would be driven by Air Force personnel and family members. For the purpose of calculating emissions, it was conservatively assumed that 75 percent of the housing occupants (75 percent of 373, or 280 persons) would drive POVs. Assuming an average daily mileage of 35 miles per day and a maximum of 5 days per week and 47 weeks per year of POV operation, the total annual VMT for POVs associated with the proposed action would be 1,342,320 miles per year.

The USEPA has developed emission factors for calculating vehicle exhaust emissions based on the VMT for each vehicle type (EPA, 1985b). Table E-11 presents emissions for vehicles associated with the proposed action. The Montgomery and Fort MacArthur Upper Reservation alternatives would result in the same POV usage and emissions as the proposed action.

Table E-11

Operational Vehicle Emissions for the Proposed Action

Vehicle Type	VMT (miles/yr)	Fuel Type	Emission Factors (lb/VMT)[a]					
			CO	**NO_x**	**SO_x**	**VOC**	**PM_{10}**	**Pb**
POVs	1,342,320	Mixed	0.0267	0.0048	0.00	0.0023	0.000	0.00
Total Annual Emissions (tpy)			17.92	3.22	0.00	1.54	0.00	0.00

[a] Source: USEPA, 1985b; Tables I-1.5, I-1.11, I-1.17

E.6 CONCLUSIONS

Since potential air pollutant emissions associated with the proposed construction and operation of MFH meet both de minimis and regional significance criteria requirements, it is concluded that the proposed action and alternatives are exempt from further conformity requirements specified by the USEPA Final General Conformity Rule.

E.7 REFERENCES

SCAQMD (South Coast Air Quality Management District), 1993. Air Quality Handbook. April

USEPA, 1985a. United States Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors*, Volume I: Stationary Sources (AP-42), 4th Edition, Ann Arbor, September, 1995.

USEPA, 1985b. United States Environmental Protection Agency, *Compilation of air Pollutant Emission Factors*, Volume II: Mobile Sources (AP-42), 4th Edition, Ann Arbor, September, 1985.