FINAL ENVIRONMENTAL IMPACT STATEMENT ON MASTER PLANNED REDEVELOPMENT AT CAMP PARKS

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Cooperating Agency: National Aeronautic Space Administration AMES Research Center. (MS237-14) Moffett Field, CA 94035

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Abstract: The Proposed Action being evaluated in this EIS is the redevelopment of Camp Parks, formally known as the Parks Reserve Forces Training Area, in Dublin, California under a May 2004 Master Plan. It includes the exchange of 180 acres within the City of Dublin from Federal to private ownership for development as the Dublin Crossing. In return, Camp Parks would receive new installation facilities at a value commensurate with the value of the exchanged land. Any funds received by NASA may be used for construction of facilities or improvements at NASA-Ames Research Center, Moffett Field, California. The Proposed Action is the Army's Preferred Alternative.

Other alternatives considered are No Action and Slow Growth. Under No Action there would be no comprehensive plan or vision for overall Camp Parks development, which would occur ad hoc as funds became available. As a result, facilities, activities, and the major organizations and tenants would remain largely unchanged. Under the Slow-Growth Alternative, Camp Parks would retain all its land holdings and gradually move toward developing the facilities and activities identified in the Master Plan as funding became available; the southern Cantonment would remain as an opportunity site for future planning.

Potential impacts associated with the Proposed Action include the following: minor contribution of criteria air pollutants, loss of 297.6 acres of non-native grasslands (mostly ruderal) and modification of 3.6 acres of wetland; loss of Congdon's tarplant (species of concern) individuals and habitat in the Cantonment Area and potentially increased disturbance in the Training Area; loss of Western burrowing owl (species of concern) burrow locations and habitat in the Cantonment Area and potentially increased disturbance in the Training Area; benefits for the local economy and surrounding communities; need for additional teachers and classrooms (partially supported by military funds); change in land ownership in the southern Cantonment Area from the federal government to the private sector and purview of the City of Dublin, and significant change in existing land uses from military training support to a mixed-use development; cumulative deterioration of level of service to Level of Service (LOS) E (congested) or worse due to constraints on possible mitigation at the Dublin Boulevard/Dougherty Road intersection when the proposed project is combined with the City of Dublin buildout scenario which includes all currently approved and planned projects. When possible, these potential impacts would be minimized through avoidance, use of best management practices, compliance with regulations and policies, and mitigation used as appropriate to reduce their severity or extent. However, not all potential impacts can be completely mitigated. In addition,

significant benefits would occur from reducing the known or potential health, safety, and hazardous substance hazards.

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FINAL ENVIRONMENTAL IMPACT STATEMENT
MASTER PLANNED REDEVELOPMENT AT CAMP PARKS

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EXECUTIVE SUMMARY

Camp Parks, formally known as the Parks Reserve Forces Training Area, is an important military training area in northern California that requires redevelopment because its facilities are outdated and insufficient to support current and future mission requirements. The 2,478-acre[1] military installation, which is part of U.S. Army, Combat Support Training Center (CSTC)[2], is located in Dublin, California, approximately 40 miles southeast of San Francisco in the Livermore-Amador Valley of Alameda and Contra Costa Counties (Appendix B, Figure 1-1). Camp Parks is the most accessible and economical training area for an estimated 250 reserve component units and 20,000 reservists in northern California, including the Army Reserve; Army National Guard; active Army; and active and reserve units of the Air Force, Navy, and Marine Corps. Other Federal, state, and local agencies and groups also use the installation. Redevelopment would enable Camp Parks to fulfill its mandate and mission to provide exceptional training and modern facilities for soldiers.

This Environmental Impact Statement (EIS) has been prepared in accordance with the National Environmental Policy Act (NEPA) and 32 CFR Part 651 (Environmental Analysis of Army Actions) to analyze the potential environmental consequences that could result from implementation of the Proposed Action and other alternatives being considered—A Slow Growth Alternative and a No Action Alternative. The Proposed Action is the Army's Preferred Alternative. The time frame for these actions is assumed to be a 20-year period beginning subsequent to the EIS Record of Decision for the Proposed Action, and 2013 to 2043 for the Slow Growth Alternative. Definition of the No Action Alternative is based on the 2009 situation. Pre-construction activity for the Proposed Action would begin immediately upon final approval of the Record of Decision (ROD). The Proposed Action consists of implementing a May 2006 Master Plan prepared by the Installation Management Command – Army Reserve (IMCOM-AR) and the U.S. Army, CSTC to guide the redevelopment and group similar land uses. The redevelopment would be concentrated in the 487-acre Cantonment Area located in the southern portion of the installation, which encompasses buildings and other facilities that provide indoor training, housing, dining, administration, maintenance, and storage. New facilities proposed in the Master Plan would replace all but five recently constructed permanent structures, an historic sign and associated guard post, a wash rack, and Residential Community Initiative (RCI) Housing. The Oakland Exchange and California Army National Guard (CA ARNG) construction currently under development would also remain. The Master Plan also involves exchange of 180-acres of the property from Federal to private ownership, consisting of 171.5-acres managed by the U.S. Army and

[1] *Acreages used throughout this document are based on data in Army GIS files; they are carried out to the number of significant figures that facilitates discussion.*

[2] *The installation's name was changed to U.S.. Army Garrison Camp Parks in 2008.*

8.5-acres managed by the National Aeronautics Space Administration (NASA). In return, Camp Parks would receive new installation facilities at a value commensurate with the value of the exchanged land. Any funds received by NASA may be used for construction of facilities or improvements at NASA-Ames Research Center, Moffett Field, California. This action would be pursuant to the NASA-Ames Development Plan Final Programmatic EIS of July 2002, and its Record of Decision dated November 2002. The specific action would be evaluated in accordance with NASA's NEPA procedures to ensure that environmental impacts are adequately described in the EIS. The results of this evaluation would be documented in a Record of Environmental Consideration. The private developer is anticipated to transform the exchanged parcel into a high-density mixed use area that would be subject to the City of Dublin's zoning, permitting, and planning processes. A mixed use development concept is evaluated in this EIS, but the actual development plan for the exchanged portion of land is still subject to the City's approval process. Specific and definitive changes in land use zoning for the land exchange would be addressed by the proponent, the City of Dublin. It is anticipated that an Environmental Impact Report (EIR) would be prepared under the California Environmental Quality Act by the City of Dublin for the change in zoning.

Two alternatives to this Proposed Action were evaluated, the Slow Growth Alternative and the No Action Alternative. Under the Slow Growth Alternative, Camp Parks would retain all its land holdings and gradually move toward developing the facilities and activities identified in the Master Plan. There would be no immediate development plans for the southern Cantonment Area, but it would remain an opportunity site for future planning. Facility/activity upgrades would be prioritized and dependent on annual funding from Military Construction Army Reserve (MCAR) allocations and project proponents. MCAR funds would be applied toward planned facilities as they became available. Considerably more time would be needed for implementation and some aspects of redevelopment might never be funded. Camp Parks would proactively seek projects that fit within the Master Plan vision, and group appropriate types of activities into the land use areas planned for them. Under the No Action Alternative, there would continue to be no comprehensive plan or vision for overall Camp Parks development within the current boundaries. Rather, decisions would be made as general budget money became available or proponents would fund their own proposals and fit them within the existing Camp Parks infrastructure. New activities (e.g., academic, field training and readiness activities), activity modifications, new facilities (e.g., structures, utilities, and other assets), facility upgrades, or new tenants would continue to be subject to these monetary constraints. Thus, for the most part under the No Action Alternative, facilities would remain in their current condition, activities would remain at their current level with gradual changes as opportunities became available, and the major organizations currently hosted at Camp Parks and the existing tenants would largely remain. Regardless of which of these alternatives is selected, maintenance/upgrading of existing facilities (e.g., buildings, roads, sidewalks, parking lots) and remediation of hazardous substance sites would continue as part of normal installation operation.

Under all alternatives, the 1,991-acre Training Area in the northern portion would remain largely undeveloped and the location, facilities, and types of training performed

unchanged. In addition, existing training activities would continue and the replacement/refurbishment of existing facilities, particularly around the firing ranges, would continue as part of normal installation operation. Under the Proposed Action and Slow Growth Alternatives, facility refurbishment, the frequency and duration of training activities and the population performing these activities would likely increase by 25% in response to future USAR military training needs. Under the No Action Alternative, the frequency and extent of Training Area use and facility refurbishment would continue to be responsive to military training needs and could either remain consistent or increase.

The following are the specific potential impacts and benefits, which are discussed in 4 and summarized in Appendix A, Table 4-13, that would be anticipated from redevelopment of Camp Parks; many of these potential impacts could be at least partially mitigated:

- Minor increases in all pollutant emissions due to construction and operational activities at Camp Parks that are less than their respective BAAQMD and USEPA thresholds;
- Minor (one percent) cumulative contribution of Master Plan implementation to regional air emission increases resulting from all existing and planned developments in the area;
- Construction of new structures and roads within the Calaveras Fault Earthquake Fault Zone (EFZ);
- Potential water quality impacts from construction-site and urban storm water or chemical/fuel spills and leaks associated with construction, and potential flooding associated with increased urban storm water runoff;
- Increased erosion during ground-disturbing activity and localized soil contamination from spills and leaks of chemicals or fuels in newly developed areas;
- Net loss of 297.6 acres non-native grasslands (mostly ruderal[3]) and modification of wetlands (3.6 acres), especially in the southern Cantonment Area where a private development called Dublin Crossing would be developed;
- Probable loss of Congdon's tarplant (a federal species of concern) habitat in the Cantonment Area, primarily in the southern Cantonment Area, and potentially increased disturbance of Congdon's tarplant in the Training Area, and increased pressure on Training Area grasslands;

[3] *Referring to sites that are weedy and altered from their natural condition by human cultivation or other disturbances.*

- Increased importance for buffer zone maintenance around all riparian areas for continued protection of Northern California black walnut;

- Loss of burrowing owl (federal and state species of concern) burrow locations in the Cantonment Area, and a loss of habitat locations in the Cantonment Area, and potential for increased disturbance in the Training Area.

- Increased disturbance in the vicinity of white-tailed kite (a federal species of concern and California fully protected species) and red-tailed hawk nests, and loggerhead shrike (federal and state species of concern) habitat in the Cantonment Area;

- Increased disturbance of wide-ranging raptor and mammalian species in the Training Area, which is becoming an island of natural habitat surrounded by urban development;

- Increased pressure on the wetland and riparian areas and a continued need to maintain a buffer zone around these areas to provide continued protection of California tiger salamander (federally listed species), California red-legged frog (federally listed species), and California linderiella (federal species of concern);

- Potential for damage, disruption, or alteration to previously undetected buried cultural resources[4] or human remains from ground disturbance;

- Changes to the setting and potential indirect damage to the National Register of Historic Places (NRHP)-eligible sign from nearby development activity;

- Increased benefits for the local economy and surrounding communities as population increases;

- A requirement for additional teachers and classrooms in nearby schools and an increase in other service needs would be comparable to a typical of those in other rapidly growing areas, although military subsidies may be available as mitigation;[5]

- The change in land ownership from federal into the private sector and a change in existing land uses from military training support to a mixed-use development both constitute significant impacts to land use;

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[4] *Cultural resources are assumed to include archeological resources throughout this document.*

[5] *The increase in students whose parents live on or work on federal property would increase federal aid per student to the schools in the area. (NMFA 2006).*

- Cumulative deterioration of level of service (LOS) at the Dublin Boulevard/Dougherty Road intersection to LOS E or worse[6] at the Dublin Boulevard/Dougherty Road intersection when the proposed project is combined with the City of Dublin buildout scenario, which includes all currently approved and planned projects due to situational constraints on mitigation possibilities, which would be a significant and unmitigated impact;

- Under the Proposed Action, 12 of the 16 intersections are expected to operate at LOS C or better in the AM and 11 of the 16 intersections to operate at LOS C or better in the PM. The following 4 intersections are expected to operated at LOS D and E or worse in the AM peak hour: Dougherty Road/Dublin Boulevard (LOS E), Dougherty Road/I-580 WB ramp (LOS D), Dublin Boulevard/Hacienda Drive (LOS D), and Hacienda Drive/I-580 WB ramp (LOS D). Five (5) intersections are expected to operate at LOS D and E or worse in the PM peak hour: Dougherty Road/Dublin Boulevard (LOS E), Hopyard Road/I-580 EB ramp (LOS D), Dougherty Road/Amador Valley Boulevard (LOS D), Dublin Boulevard/Hacienda Drive (LOS D) , and Hacienda Drive/I-580 WB ramp;

- Increased potential for complaints regarding military noise due to the increased number of residents in new developments surrounding Camp Parks; and

- Potential delay in construction schedule due to identification of previously unknown areas of contamination and associated clean-up activities, although the significant reduction in known or potential health, safety, and hazardous substance hazards would be a benefit.

Significant impacts are anticipated to selected species, socioeconomics, land use, and transportation from redevelopment of Camp Parks under the Master Plan. Impacts anticipated under the Slow Growth and No Action Alternatives are expected to be less because they would occur more slowly, and their development would be less intense and less extensive since they would not include Dublin Crossing. However, development under the No Action Alternative would also result in impacts because land use planning would be absent. Under any of the alternatives, the relative importance of even the significant impacts from Camp Parks' development would be minor when cumulative impacts are considered. Further, Camp Parks' importance to military training in the San Francisco Bay Area warrants redevelopment of the installation. When possible, appropriate mitigation measures would be applied to reduce the magnitude of the impacts, as discussed in Chapter 4 and summarized in Appendix A, Table 4-14.

The significance of these impacts and the cumulative impacts to which they contribute is summarized in the following tabulation. These impacts identified as significant below could not be fully mitigated.

[6] *A letter grade from A to F assigned to the volume-to-capacity (V/C) ratio with LOS A representing the free-flow conditions and LOS F representing severely congested conditions.*

Resource	Significant Master Plan Impacts, without Proposed Mitigation Measures?	Significant Master Plan Impacts, with Proposed Mitigation Measures?	Significant Cumulative Impacts?
Air Quality	No	No	No
Hydrology	Yes	No	No
Topography, Geology, Mineralogy and Paleontology	Yes	No	No
Soils	Yes	No	No
Vegetation, Including Special-status Plant Species and Wetlands	No	No	Yes
Fish and Wildlife, Including Special-status Species	No	No	Yes
Cultural Resources	Yes	No	No
Socioeconomics	No	No	Yes
Land Use	Yes	Yes	No
Transportation	Yes	Yes	Yes
Noise	No	No	No
Visual and Aesthetic Resources	Yes	No	No
Health/Safety and Hazardous Substances	Yes	No (benefits)	No (benefits)

This EIS integrates environmental impact analyses and related surveys and studies required to date as a result of the Army's compliance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders as implemented through 32 CFR Part 651 (Environmental Analysis of Army Actions) and AR 200-1 (Environmental Protection and Enhancement). Surveys of special status species have been completed, and the Army prepared and submitted a Biological Assessment on 6 May 2006, requesting formal consultation under Section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service (USFWS) for federally listed species. The USFWS determined in their December 2006 Biological Opinion that implementation of the Master Plan may have direct and indirect effects to kit foxes, red-legged frogs and tiger salamanders on the installation, including the 483 acre cantonment area and 1,995 acres of the range complex and field training areas as well as indirect impacts to areas outside the installation's boundaries but would not likely jeopardize the continued existence of either species.

Both Camp Parks and NASA completed Section 106 coordination with the State Historic Preservation Officer (SHPO) under the National Historic Preservation Act. The SHPO concurred with the Army's conclusion that the Master Plan will have no adverse effects

on historic properties on 1 June 2006 (USA060519B). The SHPO also concurred with NASA's conclusion that the Master Plan will have no adverse effects on historic properties on its 8.5-acre parcel in the southern Cantonment Area (NASA061127A).

Prior to implementation of the Master Plan, the following federal permits, licenses, and other entitlements must be obtained: National Pollutant Discharge Elimination System (NPDES) General Construction Permit, Clean Water Act Section 401 and Section 404 Permits for disturbance of jurisdictional wetlands, USFWS biological opinion. An amendment to the General Plan regarding land use must be obtained from City of Dublin for the exchanged 180-acre area to be developed as Dublin Crossing. The Camp Parks Integrated Cultural Resource Management Plan (ICRMP), an Integrated Natural Resource Management Plan (INRMP), an Endangered Species Management Plan (ESMP), and a Water Resource Management Plan could provide guidance on the mitigation and monitoring of impacts.

A hard copy of the Draft Environmental Impact Statement (DEIS) was placed on file at the Alameda County Library – Dublin Branch on May 16, 2007. Copies of the DEIS were sent to members of the public and various regulatory agencies between May 18, 2007 and May 22, 2007. The Notice of Availability (NOA) was published in the Federal Register on June 1, 2007. The publication of the NOA commenced the official pubic comment period that extended until July 16, 2007. A public meeting for the Draft EIS was held on June 26, 2007 from 7 p.m. to 9 p.m. at Dougherty Elementary School in Dublin. The meeting was announced in the Contra Costa Times and the Tri-Valley Herald from June 8, 2007 to June 10, 2007. During the public comment period seven written comments were received from various agencies. Response to those comments have been incorporated in the Final EIS.

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2,4-D	2,4-Dichlorophenoxyacetic Acid (2,4-D)
2,4,5-T	2,4,5-Trichlorophenoxyacetic Acid
91st TS	91st Division Training Support
AAFES	Army Air Force Exchange Service
ACM	Asbestos-containing material
AFB	Air Force Base
AGL	Above Ground Level
AMSA	Area Maintenance Support Activity
AR	Army Regulation
ARB	Air Resource Board
ARNG	Army National Guard
ARPA	Archaeological Resources Protection Act
ASA	Archaeologically Sensitive Area
ASIP	Army Stationing and Installation Plan
AST	Aboveground storage tank
AT	Annual training
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMP	Best Management Practice
BTEX	Benzene, toluene, ethylbenzene, xylenes
CA ARNG	California Army National Guard
CAA	Clean Air Act
CALEPA	California Environmental Protection Agency
CALINE4	California Line Source Dispersion Model
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CEMP	Construction Emissions Mitigation Plan
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CO	Carbon Monoxide
CSTC	U.S. Army, Combat Support Training Center
CT	Census Tract
dB	Decibels
DCA	Directorate of Community Activities
DCPA	Defense Civil Preparedness Agency
DDD	1,1'-(2,2-Dichloroethylidene)bis-[4-chlorobenzene]
DDE	1.1'-(Dichloroethenylidenene)bis(4-chlorobenzene)
DDT	1,1'-(2,2,2-Trichloroethylidence)bis[4-chlorobenezene)
DEIS	Draft Environmental Impact Statement
DEPMEDS	Deployable medical systems
DNL	Day/night noise level
DoD	Department of Defense
DOIM	Directorate of Information Management
DOL	Directorate of Logistics
DPM	Diesel Particulate Matter
DPT	Directorate of Plans and Training
DRM	Directorate of Resource Management
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office

DSRSD	Dublin San Ramon Services District
DUSD	Dublin Unified School District
DVSP	Dougherty Valley Specific Plan
EA	Environmental Assessment
EBRPD	East Bay Regional Park District
EBS	Environmental Baseline Survey
ECS 30	Equipment Concentration Site 30
EDSP	East Dublin Specific Plan
EFZ	Earthquake Fault Zone
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMFAC	Emissions Factor Model
ENMP	Environmental Noise Management Plan
ESA	Endangered Species Act
ESL	Environmental Screening Level
ESMP	Endangered Species Management Plan
ESRI	Environmental Systems Research Institute
FCI	Federal Correctional Institute
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRE	Finance, Insurance, and Real Estate
FNSI	Finding of No Significant Impact
FOST	Finding of Suitability to Transfer
GIS	Geographic information system
HAP	Hazardous air pollutant
HQ	Headquarters
ICRMP	Integrated Cultural Resource Management Plan
IDT	Individual development training
IMCOM-AR	Installation Management Command - Army Reserve
INRMP	Integrated Natural Resource Management Plan
INS	Immigration and Naturalization Service
ISWMP	Integrated Solid Waste Management Plan
kv	Kilovolt
kva	Kilovolt-ampere
LOS	Level of service
MCAR	Military Construction Army Reserve
METL	Mission Essential Task List
MHPI	Military Housing Privatization Initiative
mph	Miles per hour
MSA	Metropolitan Statistical Area
NAGPRA	Native American Graves Protection and Repatriation Act
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOx	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OCP	Organochlorine pesticide
ODC	Ozone depleting chemical
OHV	Off highway vehicle
OMS	Organizational Maintenance Shop
OPFOR	Opposing force
PACM	Presumed to contain asbestos material
PCB	Polychlorinated biphenyl

PG&E	Pacific Gas and Electric
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
PRG	Preliminary Remediation Goal
PRFTA	Parks Reserve Forces Training Area
PVC	Polyvinyl chloride
QRP	Qualified recycling program
RCI	Residential community initiative
RDX	Cyclotrimethylenetrinitramine
ROD	Record of Decision
ROG	Reactive organic gases
ROI	Region of influence
RRC	Regional Readiness Command
RRSE	Relative Risk Site Evaluation
RTS-MED	Regional Training Site-Medical
RWQCB	San Francisco Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SOP	Standard Operating Procedure
Sox	Sulfur Oxide
SVOC	Semivolatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASC	Training Aids Support Center
TPH	Total petroleum hydrocarbon-diesel and motor oil range
TPH-D	Total petroleum hydrocarbon-diesel range
TPY	Tons per year
TS	Training Support
USAR	U.S. Army Reserve
U.S.C.	United States Code
UCL	Upper confidence level
ug/m^3	Micrograms per cubic meter
UPH	Unaccompanied personnel housing
URBEMIS	Urban Emissions Model
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAEC	U.S. Atomic Energy Commission
USAR	U.S. Army Reserve
USARC	U.S. Army Reserve Command
USD	Unified school district
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USNRC	U.S. Nuclear Regulatory Commission
UST	Underground storage tank
VOC	Volatile organic compound
WAPA	Western Area Power Administration
WARISC	Western Army Reserve Intelligence Support Center

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1 INTRODUCTION

This Environmental Impact Statement (EIS) evaluates a Master Plan proposed to guide the redevelopment of the Cantonment Area in Camp Parks, formally known as the Parks Reserve Forces Training Area. Camp Parks is an important military training area in northern California that requires redevelopment because its facilities are outdated.

Subsequent sections of this chapter describe Camp Parks and its location, history, and mission (Section 1.1); present the purpose and need for a Master Plan update (Section 1.2); and present the scope of the Proposed Action and its relationship to other projects at Camp Parks (Section 1.3), the mandates and authorities for preparation of the Master Plan EIS (Section 1.4), consultation and coordination actions (Section 1.5), and decisions and responsibilities (Section 1.6).

1.1 CAMP PARKS LOCATION, HISTORY, AND MISSION

1.1.1 Location

This 2,478-acre[7] military installation, which is part of U.S. Army, Combat Support Training Center (CSTC)[8], is located in northern California approximately 40 miles southeast of San Francisco in the Livermore-Amador Valley of Alameda and Contra Costa Counties (Appendix B, Figure 1-1). The installation is situated in the City of Dublin, near the Cities of Pleasanton and San Ramon. The jurisdictional boundary between Alameda and Contra Costa Counties traverses the northern portion of the installation. The Alameda County portion of Camp Parks is situated on the north side of Dublin Boulevard, between Dougherty Road and Tassajara Road in the City of Dublin, California. The Dublin Transit Center for the Bay Area Rapid Transit (BART) system is directly south of Camp Parks, on the south side of Dublin Boulevard. The junction of two main interstate highways—Interstate 580 (I–580), less than half a mile south of Dublin Boulevard, and I–680, less than one mile west of Dougherty Road—provides convenient access to and through the area. I–580 and I–680 connect Camp Parks to major metropolitan centers, including the San Francisco Bay Area (Bay Area). The City of Pleasanton is in Alameda County on the south side of I–580 and south of Dublin. The City of San Ramon is largely located east of I–680 in Contra Costa County, north of Dublin and west and north of the Camp Parks boundary.

The area surrounding Camp Parks is rapidly developing. Along Tassajara Road to the east, numerous subdivisions are being constructed in the Dublin Ranch, Yarra Yarra Ranch, Tassajara Meadows, and Pinn Brothers developments. On the north, the large

[7] *Acreages used throughout this document are based on data in GIS files; they are carried out to the number of significant figures that facilitates discussion.*

[8] *The installation's name was changed to U.S.. Army Garrison Camp Parks in 2008.*

Contra Costa County subdivisions of Windemere and Gale Ranch are also being developed. When the developments in various stages of completion are added to those already present, Camp Parks will be nearly surrounded by urban development. Currently, only one area, northeast of Camp Parks, will remain undeveloped because it is outside the San Ramon 2020 urban growth boundary.

Camp Parks has two major geographic subdivisions that reflect different uses of the land (Appendix B, Figure 1-2). On the south side of the installation, the 487-acre Cantonment Area encompasses buildings and other facilities that provide indoor training, housing, dining, administration, maintenance, and storage. Outdoor training occurs on the largely undeveloped 1,991-acre Training Area to the north. Weapons ranges, training courses, bivouac areas, maneuver areas, tracking sites, bridge sites, medical sites, and a field kitchen provide a vast outdoor classroom (Appendix B, Figure 1-3). An 8.5-acre inholding within the Cantonment Area is owned by the National Aeronautics and Space Administration (NASA) and contains a large warehouse, while an 11-acre inholding within the Training Area is owned by the Air Force and contains a communications facility. The NASA inholding would be transferred to private ownership as part of the Proposed Action.

1.1.2 History

Camp Parks (formerly PRFTA) in Dublin, California, is part of the U.S. Army, Combat Support Training Center (CSTC). Camp Parks was initially formed as a military installation for the Navy Seabees in 1942 on 3,900 acres of the former Dougherty Ranch and named Camp Parks. After World War II, Camp Parks changed hands within the military several times. Many facilities were built in the early 1950s, when the U.S. Air Force dismantled the camp for use as a training facility. From 1959 to 1980, the Army managed Camp Parks and used it for various activities. In 1980, the Army activated the facility as a mobilization and training center for Army Reserve components and renamed it Camp Parks. As a result of these activities, most of the southern portion of Camp Parks has been developed with housing and administrative support structures at one time or another. Over the years, numerous real property transactions have resulted in the installation's being reduced to its current size.

Camp Parks is now used as a training facility for many Department of Defense (DoD) components—including the Army Reserve; Army National Guard; active Army; and active and reserve units of the Air Force, Navy, and Marine Corps. Other federal, state, and local agencies and groups also use the installation.

1.1.3 Mission

The primary mission of Camp Parks is to provide an environment that supports individual, collective, and institutional training, as well as to provide training facilities and selected installation services for the total combined force, especially U.S. Army Reserve components. In fulfilling this mission, CSTC oversees Camp Parks operations and hosts components of a number of major organizations. CSTC is represented at Camp Parks by the following functional components: Commander, Directorate of Plans and

Training (DPT), Directorate of Logistics (DOL), Directorate of Public Works (DPW), Directorate of Community Activities (DCA), Directorate of Information Management (DOIM), Directorate of Resource Management (DRM), Fire and Emergency Services, and Police Services.

The major tenant organizations hosted at Camp Parks are the following: 91st Division Training Support (91st TS), which plans, conducts, and evaluates training; Regional Training Site-Medical (RTS-MED), which supports field training exercises and tests equipment; Equipment Concentration Site (ECS 30) and the Area Maintenance Support Activity (AMSA), which organize, maintain, and store U.S. Army Reserve (USAR) equipment; Camp Parks Training School, which teaches classes on such topics as health, cooking, finance, and supply to active, reserve, and national guard components of the Army; Federal Correctional Institute (FCI) Work Camp, which leases facilities for a women's prison; Western Army Reserve Intelligence Support Center (WARISC), which provides intelligence training and support; 104th Division (Institutional Training); Army Air Force Exchange Service (AAFES); U.S. Air Force Satellite Tracking Station (Onizuka Air Station); Dublin San Ramon Services District (DSRSD); and U.S. Naval Reserve.

Other smaller units provide air assault and air mobile infantry, communications equipment, recruiting, public works support and equipment, illegal alien identification and control, housing administration, computer-based and classroom training, training aids, and information support. In addition, the 63D Regional Readiness Command, Army National Guard (ARNG), and Residential Community Initiative (RCI) are currently or have just finished developing facilities on Camp Parks as discussed in Section 1.3. The diversity of the organizations and facility uses at Camp Parks is depicted in further detail in Appendix A, Table 1-1.

The Camp Parks installation is very dynamic and continually changes to accommodate its tenants. The tenants could be supplemented or replaced over time as training and educational needs change. To the extent these changes are known and are associated with implementation of the Master Plan (e.g., the DSRSD relocation discussed in Section 1.3), they are addressed in this EIS.

In the Camp Parks Cantonment Area, land uses include grassland[9], parking lots, roads, buildings, recreation areas, wetlands, sidewalks, concrete slabs, and a helipad. There are over 100 major buildings within the Cantonment Area (Appendix B, Figure 1-4). Facility uses include the health clinic, training aids support center (TASC), barracks, housing, garages, storage, administration, dining, chapel, classrooms, police, museum, post exchange, visitor's center, recreation, compressor equipment, and vehicle maintenance. These buildings with information characterizing them and their users are listed in

[9] *Grassland in the Cantonment area is ruderal, i.e., weedy and altered from its natural condition by human cultivation or other disturbances.*

Appendix A, Table 1-2. There are approximately 40 small outbuildings in the Cantonment Area that are used primarily for storage. These Cantonment Area facilities are used for installation operations, academic activities, administration, equipment storage, maintenance activities, and housing. Limited training activities, such as bivouacking, marching, patrolling, and driver's training, also occur in the Cantonment Area.

Nearly all the training activities occur in the Training Area. Vegetation in the Training Area is primarily undeveloped grassland; however, riparian areas and wetlands also exist. Field-training activities in the Training Area include weapons firing, artillery simulator activation, tactical vehicle operation, field power generator operation, field operation set-up, training in physical skills and leadership, low-level helicopter operations, and controlled burning activities. The Training Area is divided into 11 military use areas, alphabetically labeled A–M (minus H and I) and numerous special activity sites (Appendix B, Figure 1-3). More detailed information on the Cantonment Area and Training Area is provided in Section 3.9.1.

1.2 PURPOSE AND NEED FOR A MASTER PLAN UPDATE

Camp Parks is the only military training area within the San Francisco Bay Area. Other DoD facilities in the area, including two small military reservations on the south shore of Lake Chabot (11 miles to the west-northwest and just north of Castro Valley), the Naval Regional Medical Center (13 miles to the northwest toward Oakland), and facilities near Stockton and the San Francisco Bay, are not used for training. Camp Parks is the most accessible and economical training area for an estimated 250 reserve component units and 20,000 reservists in northern California.

The Cantonment Area has many facilities constructed in the late 1940s and early 1950s. Many of these facilities have been demolished to save operation and maintenance costs. The Cantonment Area has over 100 remaining buildings that are at least 50 years old interspersed with vacant fields where other buildings once stood. The buildings that remain continue to be used and have been repeatedly modified and updated to meet the changing needs of their occupants. Even so, they were designed in another era and do not readily accommodate modern office equipment or meet today's standards for convenience, health, or safety. As a result, the Cantonment Area facilities are insufficient to support current and future mission requirements. Modern facilities are essential if Camp Parks is to continue to provide world-class training, promote the CSTC model for academic excellence, maintain an excellent quality of life, support commitments for quality customer service, provide a highly capable pre-mobilization site, promote the military's role as an environmental guardian, and continue to be a good neighbor to the surrounding community. Redevelopment would enable Camp Parks to fulfill its mandate and mission, which is to provide exceptional training and modern facilities for soldiers.

Camp Parks' importance to military training warrants redevelopment of the installation. The need for redevelopment was recognized as early as 1980, and more intensive efforts toward planning for this redevelopment were initiated in the late 1990s. Early master

planning and National Environmental Policy Act (NEPA) documents associated with this process were never completed or released to the public because redevelopment plans continued to change. To capture the most current redevelopment plans, the Installation Management Command - Army Reserve (IMCOM-AR) and CSTC prepared a new Master Plan in November 2002, which was further revised through May 2004. Implementation of the current version of the Master Plan is the focus of this EIS.

The Master Plan develops and describes an approach to modernizing the Camp Parks Cantonment Area, as well as a small portion of the Training Area. Recently constructed permanent structures within the Cantonment Area (Buildings 20, 30, 370, 520, and 610), a historic sign and associated guard post, a wash rack, RCI Housing, and 63D RRC (Oakland Exchange) and CA ARNG construction under development would be retained and form the anchors of the proposed new land use. Specific goals and objectives to be met through implementation of the Master Plan include the following:

- Focus on the training missions by improving the training and service facilities that support reserve training operations, consolidating teaching functions, and expanding academic capabilities.

- Revitalize ranges by improving berm/baffle systems to ensure safe and efficient firing operations for all customers, and establishing an aggressive environmental program to ensure restoration of bullet catch areas.

- Develop a campus-style training center to consolidate reserve unit administration, operations, and training.

- Promote efficient land use by consolidating major land uses throughout the installation and reducing conflicts of incompatible land use areas on and around the installation.

- Improve facilities/utilities by privatizing utilities to improve future operation and maintenance, and by transitioning to underground utility systems to increase their reliability and reduce visual clutter.

- Promote design excellence by establishing design themes for the installation through the identification and maintenance of visual districts and establishing and maintaining architectural compatibility guidelines for facilities, landscape, and site furnishings.

- Maintain environmental leadership by establishing organizational structure that supports environmental stewardship and establishing and executing cleanup milestones and programs.

- Enhance good neighbor partnerships by maintaining a good working relationship with local officials and coordinating planning and environmental actions with all appropriate agencies in a timely manner.

- Foster information exchange by supporting a web site for Camp Parks and the Master Plan components. Update and coordinate revisions to the component plans and documents with the appropriate agencies.

Key aspects of the Master Plan are to create a defined campus area, a defined industrial area, a community support area, and a housing area; consolidate similar land use areas; and arrange land use areas so that adjacent uses are compatible with each other.

To evaluate environmental impacts associated with implementing the Master Plan, an Environmental Assessment (EA) was prepared initially. The 2003 Draft EA revealed a need for more detailed environmental review to assess the potential for significant impacts. Specifically, the Proposed Action could have potentially significant impacts on:

- Air quality through increased emissions of carbon monoxide (CO);
- Special-status species or their habitats that occur or might occur in the Cantonment Area since they are known in the Training Area;
- Land use by effecting major changes; and
- Transportation by rerouting traffic into and from Camp Parks and also by increasing traffic volume with additional people.

A Finding of No Significant Impact (FNSI) could not be signed for the EA because of these potentially significant impacts. Rather, a Notice of Intent (NOI) to prepare this EIS was published on November 18, 2003, in the Federal Register (Volume 68 (222): 65044). In preparation for the EIS, more information was obtained for the resources pertaining to which potentially significant impacts were identified, and surveys were conducted. In particular, air quality and transportation projections were recalculated using new data, wetland and sensitive species surveys were conducted in 2003, a new study was prepared for cultural resources[10], new information on hazardous substances was obtained, and the Proposed Action underwent further revision. In addition, close coordination with the City of Dublin was initiated because under the Proposed Action as defined for this EIS, the redevelopment of Camp Parks would include the exchange of land into the purview of the City of Dublin's zoning rules.

The potentially significant impacts associated with this project and the complexities of the installation's interface with the City of Dublin and surrounding developments warrant the preparation of an EIS to disclose, evaluate, and compare the potential impacts on environmental resources from implementation of the Proposed Action and its alternatives.

[10] *Cultural resources are assumed to include archeological resources throughout this document.*

1.3 SCOPE OF THE PROPOSED ACTION AND ITS RELATIONSHIP TO OTHER PROJECTS AT CAMP PARKS

Under the Proposed Action, the Cantonment Area would be redeveloped, with 317 acres in the northern Cantonment Area remaining in federal ownership and the 171.5 acres in the southern Cantonment Area being exchanged into private ownership. There is also an 8.5-acre inholding that is NASA-owned property. This inholding would be transferred to private ownership for a total multiple-use development of 180-acres called Dublin Crossing. The size of the northern Cantonment Area, which is currently 317 acres, would increase to 362 acres by acquiring 45 acres from the southern Training Area. The remainder of the Training Area would remain largely unchanged, with some replacement of existing facilities.

An additional action is the relocation of utility facilities owned by DSRSD, which provides sewer and water at Camp Parks and in surrounding communities. The service center consists of four modular buildings used for offices, lockers, rest rooms, a library, and ten containers used for truck storage. Because the service center is within the land exchange parcel, its current site would no longer be in federal ownership if the Master Plan were implemented. The facility would, therefore, be moved to a 5-acre area east of Dougherty Road, north of Range Road, and west of North Cromwell Avenue, adjacent to an existing DSRSD pumping station in the Training Area. Such a move would increase operational efficiency and provide ease of access to consolidated DSRSD facilities from outside the Camp Parks security fence. It is therefore also proposed as a component of the Slow Growth Alternative, but would not occur under the No Action Alternative. The change in use of the proposed 5-acre parcel and the impacts from the relocated DSRSD facilities are included in this EIS.

Three other projects (Appendix B, Figure 1-2) at Camp Parks have been ongoing during preparation of this EIS and have been previously addressed by independent EA documents; they are not part of the Proposed Action. Significance and mitigation associated with the impacts from these projects are addressed in their independent EA documents. These projects are also included in the cumulative impacts analysis in 5. The three projects are described below.

RCI Housing Area. The CSTC has granted a 50-year lease for 34 acres in the Cantonment Area at Camp Parks to a private company, which has constructed new housing and ancillary support facilities under an RCI . An independent EA that evaluated this project under NEPA was completed in 2003 (USACE 2003a) and the project has since been completed. The RCI project included the construction of 113 new family housing units, and the demolition of 12 older, family units at Camp Parks. The original Commander's quarters was retained, as was one additional unit for fire fighter training. The construction occurred in the area north of 5th Street and west of Davis Avenue, near Dougherty Road and along the western boundary of the installation.

OMS and Readiness Center. The California Army National Guard (CA ARNG) constructed an Organizational Maintenance Shop (OMS) and will construct a Readiness Center on a 24-acre project site in the Cantonment Area at Camp Parks. An independent

EA on this project was completed in 2002 (USACE 2002a). The CSTC issued a real property license to the CA ARNG to use the project site. The OMS will be used to repair and maintain ancillary and support vehicles. The Readiness Center will be used for training, administration, and storage. Both facility sites are on the eastern side of the installation in a previously undeveloped area that is east of Hutchins Avenue, west of Loring Avenue, north of Sixth Street, and south of Seventh Street and the FCI work camp. Both the OMS and Readiness Center will have an USEPA identification number that is separate from the USEPA identification number for Camp Parks.

Oakland Exchange. In exchange for construction of Army Reserve facilities at Camp Parks, Army Reserve property located on and adjacent to the Oakland Army Base in Alameda County is being transferred out of federal ownership (to the Oakland Base Reuse Authority, East Bay Municipal Utilities District, and the Port of Oakland). An independent EA was completed on this action in 2003 (USAR 2003b) and released to the public in October 2004. Approximately 663 positions in Army Reserve units currently assigned to the 63D Regional Readiness Command (RRC) and stationed in Oakland will be relocated to the new facility at Camp Parks after facilities to house them have been completed. Administrative and classroom training support for these units will occur within the new facilities, while vehicle and equipment storage and maintenance will be moved to existing motor pool and storage areas (Buildings 730, 730A-C, 731, 732, and 792) at Camp Parks until additional vehicle maintenance facilities have been constructed. Military activities associated with the various reserve units will continue to include administrative and maintenance support, individual development training (IDT), and annual training (AT). The new facilities on Camp Parks are planned for a 29-acre portion of the existing Cantonment area that is north of Fifth Street, west of Hutchins Avenue, east of Fernandez Avenue, south of Eighth Street and the FCI work camp, and previously designated as the parade field. A supplemental EA has been prepared to address changes being considered in the Oakland Exchange project as previously evaluated under NEPA (Vernadero 2005).

1.4 MANDATES AND AUTHORITIES FOR PREPARATION OF THE MASTER PLAN EIS

The primary mandates and authorities for preparation of this EIS are the National Environmental Policy Act of 1969 (NEPA; Public Law 91-190, 42 United States Code [U.S.C.] 4321–4347, January 1, 1970), as amended; the Council on Environmental Quality Regulations implementing NEPA (CEQ Regulations; 40 Code of Federal Regulations [CFR] 1500 et seq., November 29, 1978), as updated; and Environmental Analysis of Army Actions (32 CFR Part 651), which implements the two preceding authorities for the Army. NEPA and the CEQ regulations require federal agencies to consider environmental consequences in their decision-making process. 32 CFR Part 651 identifies master plans as actions requiring detailed environmental review. Under these regulations, the mandated process for an action of this scope is as follows:

- Analysis in either an EA or an EIS to assess the impacts that would result if the action proposed were implemented;

- Development of reasonable alternatives to the action proposed that also accomplish the desired goals;
- Comparison of potential impacts from the action proposed with the potential impacts from its alternatives; and
- Recommendation for implementation, modification, further study, or denial of the action analyzed.

This EIS has been prepared to fulfill this mandated NEPA process according to the regulations in 40 CFR 1500-1508 and 32 CFR Part 651. In this document, implementation of the Master Plan is the Proposed Action.

As noted on the U.S. Army Environmental Center Web site (http://aec.army.mil/usaec /nepa/compliance00.html), NEPA integrates the consultations and considerations of other statutes, regulations, presidential documents, and guidance into a synthesis of impacts, resolutions, and mitigations, providing a single analysis and evaluation of the environmental impacts. Guidance, regulations, and statutes key to complying with NEPA are listed in Appendix A, Table 1-3.

The Master Plan was prepared in accordance with AR 210-20. That regulation requires the development of master plans as well as alternatives. It also requires integration with NEPA.

1.5 CONSULTATION AND COORDINATION

Consultation and coordination have been required during various facets of Master Plan development and to meet public and agency involvement requirements under NEPA. The Army has also coordinated with the City of Dublin, which would be responsible for approving any needed zoning changes associated with the project. Evaluation of the impacts from the Proposed Action and its alternatives required coordination with local governments and multiple agencies for consultation and for obtaining data on the resources addressed in Chapters 3 and 4 of this document. These information sources are documented in Chapter 6, as appropriate.

In compliance with NEPA guidance, an NOI to prepare this EIS was published in the Federal Register on November 18, 2003. Legal notices and press releases (Appendix C) were published in local newspapers from November 25 through December 10, 2003, announcing to the public the Army's intent to prepare an EIS. Two scoping meetings were held on December 9 and 10, 2003, to solicit public input on the alternatives to be considered in this EIS and to identify any issues that should be considered.

The DEIS was submitted to the California State Clearinghouse as California Environmental Quality Act (CEQA) Guidelines require DEISs prepared pursuant to NEPA (California Governor 2005). The California State Clearinghouse is included in the Distribution List (Chapter 9) for this document. A copy of the Draft EIS was placed on file at the Alameda county Library – Dublin Branch on May 16, 2007. Electronic copies

of the DEIS were sent to members of the public and various regulatory agencies between May 18, 2007 and May 21, 2007 (Appendix C). Five hard copies of the Draft EIS were sent to USEPA on May 22, 2007 (Appendix C). The NOA was published in the Federal Register on June 1, 2007 (Appendix C). The publication of the NOA commenced the official pubic comment period that extended until July 16, 2007.

A public meeting for the Draft EIS was held on June 26, 2007 from 7 p.m. to 9 p.m. at Dougherty Elementary School in Dublin. The meeting was announced in the Contra Costa Times and the Tri-Valley Herald from June 8, 2007 to June 10, 2007 (Appendix C). The meeting was also announced in the letters that were sent with the electronic copies of the DEIS.

During the public comment period seven written comments were received from various agencies. Appendix C contains copies of all written comments and responses. Further detail on the process of consultation and coordination associated with preparation of this EIS can be found in Chapter 8.

1.6 DECISIONS AND RESPONSIBILITIES

Camp Parks holds decision-making authority for the redevelopment of Camp Parks property. This EIS is intended to assist with decisions regarding the approach to and the actions associated with the implementation of Cantonment Area redevelopment at Camp Parks, evaluate whether to exchange 180-acres of federal land to private ownership, and assess the development direction of Dublin Crossing, if the acreage is exchanged. If the Dublin Crossing exchange takes place, NASA would transfer its 8.5-acre inholding either directly to the exchange partner or thru the Army to the exchange partner. If the Proposed Action is selected by the decision-makers, the City of Dublin would be responsible for approving the zoning required to implement Dublin Crossing and further coordination between the Army and the City of Dublin would be required. In addition, disposal actions associated with Dublin Crossing would necessitate preparation of a Finding of Suitability to Transfer (FOST), which is required for the transfer of DoD and NASA land out of Federal ownership. The City of Dublin would be responsible for preparing other appropriate environmental documentation required by the CEQA to evaluate the impacts of rezoning/development of Dublin Crossing.

2 PROPOSED ACTION AND ALTERNATIVES

This chapter characterizes the Proposed Action (Section 2.1), the Slow Growth Alternative (Section 2.2), and the No Action Alternative (Section 2.3) that are evaluated in this EIS. Other alternatives, whose development preceded that of the Proposed Action, are described in Section 2.4.

In this EIS, each Camp Parks activity is evaluated at the level of detail to which it is known. The need for further NEPA evaluation is noted where appropriate. The alternatives discussed below focus on the future of development in the Cantonment Area. Camp Parks' mission and available training activities would remain largely unchanged under all alternatives.

2.1 PROPOSED ACTION

The Proposed Action is the implementation of the Master Plan. Under the Proposed Action, redevelopment of the Cantonment Area would provide more modern and better-organized facilities. Beneficial features of the Proposed Action include: peripherally located family housing, minimal impact on range training, aggregation of similar land uses, a campus-style training center, and controlled access at a main entry gate. The Proposed Action is the Army's Preferred Alternative.

The components of the Master Plan were developed in accordance with AR 210-20 after consideration of a tabulation of existing facilities, a real property utilization survey, an installation design guide, a utilities investigation, and a land use plan, all of which characterize the existing situation at Camp Parks. Facility needs were also based in part on extrapolations from data on projected growth in the population using Camp Parks. Compared to a baseline in 2002, the Proposed Action anticipates a population increase at build-out of 11 percent for daily personnel (from 920 to 1,020 people), the average daily use of the installation from Army stationing and full-time units/staff, and 85 percent for total of assigned personnel (from 2,297 to 4,242 people), the total amount of Army stationing and full-time units/staff assigned to Camp Parks, as summarized in Appendix A, Table 2-1. In other words, the total assigned personnel is projected to increase by 1,945 people by 2012.

The Master Plan consists of the following components that are further analyzed in this EIS: proposed land use categories (Appendix B, Figure 2-1), proposed facilities (Appendix B, Figure 2-2), and an exchange parcel (Dublin Crossing) that would be developed as depicted in Appendix B, Figure 2-3. The Master Plan does not allocate specific actions or facilities to a particular time frame. Rather, execution goals and objectives that provide guidance for a systematic and orderly future implementation program are presented. This guidance encourages the efficient use of space and money for new construction and establishes a sequence of steps, such as the following, that would lead effectively toward plan implementation with minimal disruption to Camp Parks operations.

- Environmental cleanup and restoration would need to be coordinated with appropriate regulatory agencies to deal with any contamination issues on lands to be developed or exchanged.

- Facilities currently being used in the southern Cantonment Area would need to be replaced within the northern Cantonment Area prior to the exchange of the southern Cantonment Area for development as Dublin Crossing.

- The Dublin Crossing exchange would need to be completed to allow substantial construction and development efforts in the northern Cantonment Area.

Although the Master Plan does not provide a specific chronological schedule, the relative timing for implementing its actions is addressed in a nominal Execution Plan. The Execution Plan creates a list for the redistribution of units to new buildings as they are constructed while minimizing relocations and costs as much as possible. It is assumed that pre-construction activities for implementation of the Master Plan would begin immediately after the Record of Decision (ROD) was finalized, although construction activities are assumed to occur through a 20-year period. While specific Master Plan guidance would be implemented, restoration activities and maintenance/upgrading of existing facilities (buildings, parking lots, sidewalks, roads, firing range facilities, etc.) would be ongoing in both the Cantonment Area and the Training Area as part of Camp Parks' regular functioning. It is assumed that 75 percent of Master Plan implementation would occur within the first five years (at 15 percent a year), with the remaining 25 percent of implementation spread over the subsequent 15 years (at 1.7 percent a year).

The components of the Proposed Action are discussed below for three geographic areas: the northern Cantonment Area, the southern Cantonment Area, and the Training Area. In general, the 317-acre northern Cantonment Area is north of 5th Street, while the 171.5-acre southern Cantonment Area and the 8.5-acre NASA inholding are south of 5th Street. The 1,991-acre Training Area is north of the northern Cantonment Area (Appendix B, Figure 1-2).

2.1.1 Northern Cantonment Area - Proposed Action

The Master Plan provides for more efficient use of the northern Cantonment Area, reduces or eliminates land use conflicts, and supports efficient utility, transportation, and facility networks to sustain Camp Parks' first-class training activities. The campus-style operations and training center consolidates compatible operations and land uses into functional districts in order to reduce land use conflicts within Camp Parks and between the post and adjacent lands.

Under the Proposed Action, the Future Land Use Plan and the Site Development Plan would both be implemented in the northern Cantonment Area. However, the size of the northern Cantonment Area, which is currently 317 acres, would increase to 362 acres by acquiring 45 acres from the southern Training Area. Development of the redefined northern Cantonment Area according to the Master Plan would result in a more dense spacing of buildings than currently exists. About 90 percent of the roadway that would

service these new buildings would be existing roads that would be resurfaced and have curb and gutter added (Appendix A, Table 2-2). The other 10 percent of the roadway proposed in the Master Plan would be new construction to extend the main gate road to Dougherty Road. New utilities to service the new buildings would generally be laid in the same trenches that contain existing utilities or buried beneath existing utility lines, except for service laterals between the main utility lines and individual buildings. The land use categories and building locations planned for the northern Cantonment Area are discussed in more detail below.

2.1.1.1 Land Use Categories - Northern Cantonment Area, Proposed Action

The Future Land Use Plan establishes areas where specified types of land uses would occur within the northern Cantonment Area. Implementation of the plan would enable the rapid and extensive rebuilding of Camp Parks through short-range and long-range components that specify the types and locations of land uses and facilities.

Key aspects of the Future Land Use Plan are the creation of a defined Campus Area for operations and training, reconstruction of family housing, consolidation of comparable uses into defined land use areas, and the comprehensive arrangement of land use areas so adjacent uses are compatible. The five land use categories identified by the Future Land Use Plan within the northern Cantonment Area boundaries are the following, as illustrated in Appendix B, Figure 2-1:

- Housing (Land Use Category HS) - Located furthest from the field-training activities;
- Industrial (Land Use Category IN) - Located adjacent to the range/training land uses;
- Open Space (Land Use Category OS) - Provides a buffer from the Training Area to the north and from Dougherty Road to the west and is part of the new entrance complex along Dougherty Road. Open Space areas would provide future opportunity sites for planning;
- Operations and Administration (Land Use Category OP) - Extends throughout most of the northern Cantonment Area; and
- Recreation (Land Use Category RC) - Located near family housing.

2.1.1.2 Building Locations - Northern Cantonment Area, Proposed Action

The Site Development Plan defines the specific square footage and number of buildings that would be present in the final reconstruction of Camp Parks, as well as the number of stories and the notional location of each building. These proposed buildings are listed in Appendix A, Table 2-2 together with their description, size, proponent, number of floors, location, and other information. Their proposed locations are shown in Appendix A, Table 2-2. The units that would be assigned to these new facilities are identified in

Appendix B, Figure 2-2. Under the Master Plan, nearly 40 new facilities would be constructed within the northern Cantonment Area to serve purposes consistent with their land use category. These facilities would provide nearly double the square footage currently available as classrooms and provide three times the square footage of non-family housing that is currently available. Family housing units, not included in these figures, have increased by nearly nine times with completion of the family housing at the RCI site. It is expected that the redeveloped northern Cantonment Area would have excess capacity in its facilities that would accommodate on-post populations as they continue to increase beyond the 20-year time frame considered by the Master Plan. The projected total occupant capacity of the planned buildings is 5,551, which exceeds the total assigned population of 4,242 projected for 2012 (Appendix A, Table 2-1) by 31 percent.

If implementation of the Site Development Plan were completed, most of the buildings at Camp Parks would be new. The five buildings most recently constructed at Camp Parks (Buildings 20, 30, 370, 520, and 610) would be retained under the Proposed Action, as would the old guard house that is associated with the historic Camp Parks sign, a wash rack in Training Area L, and RCI Housing. The 63D RRC (Oakland Exchange) and CA ARNG recent construction would also remain. All other buildings currently present at Camp Parks would be demolished.

2.1.2 Southern Cantonment Area - Proposed Action

The southern Cantonment Area is located south of 5th Street west of Hutchins Avenue, and south of 6th Street east of Hutchins Avenue (Appendix B, Figure 1-2). Under the Proposed Action, the 180-acre Dublin Crossing area would be moved from Federal to private ownership. This exchange could be staged or partial. In exchange, Camp Parks would receive new installation facilities at a value commensurate with the value of the exchanged land. Any funds received by NASA for its inholding within Dublin Crossing may be used for construction of facilities or improvements at NASA-Ames Research Center, Moffett Field, California. This action would be pursuant to the NASA-Ames Development Plan Final Programmatic EIS of July 2002, and its Record of Decision dated November 2002. The specific action would be evaluated in accordance with NASA's NEPA procedures to ensure that environmental impacts are adequately described in the EIS. The results of this evaluation would be documented in a Record of Environmental Consideration. Environmental impacts or evaluations associated with the use of funds from the transfer/sale of NASA's property is outside the scope of this EIS and would be determined by NASA when a definitive project is identified.

In the Master Plan, it is anticipated that Dublin Crossing would be developed into high-density residential or mixed use and would be subject to the City's zoning, permitting, and planning processes. The proportion and design of the residential, office, and commercial mixed-use components considered in this EIS were developed in concert with the City of Dublin during a process that included public participation in two planning charrettes. Five proposals emerged from this cooperative planning process that were evaluated as to how they met objectives for urban design and place making, land

use distribution, circulation/traffic, open space/environment, civic/cultural amenities, and housing types. The two more preferred alternatives (#4 and #5) were best in achieving objectives for urban design and place making (#4 and #5), land use distribution (#5), open space/environment (#4), civic/cultural amenities (#5), and/or housing mix and distribution (#5). Alternative #5 was most preferred. It had the highest housing density (1,996 dwelling units), which provided the greatest amount of moderate-to-high-density housing, the potential for greater affordability, and the highest degree of accessibility between housing and neighborhood-serving parks and open space (RTKL 2004).

Implementation of Alternative #5 is assumed in this EIS because it represents the best available depiction of how Dublin Crossing would be developed, even though it will be revised further and is still subject to the City of Dublin's approval process. Alternative #5 is described in the following sections as a component of the Proposed Action.

In association with the Dublin Crossing development, a number of facilities in the southern Cantonment Area would be demolished as listed in Appendix A, Table 2-2. Two other removal actions are also expected to occur:

- Relocation of the Power Substation in the vicinity of 5th Street and Monroe Avenue to clear the Dublin Crossing area; the new location depends on utilities privatization decisions.

- The demolition of the NASA warehouse within the southern Cantonment Area.

2.1.2.1 Land Use Categories - Southern Cantonment Area, Proposed Action

Final decisions on specific Dublin Crossing land uses will not be made as part of this EIS since the proposal will be subject to analysis in an Environmental Impact Report (EIR) under CEQA. The following synopsis describes Dublin Crossing as it is envisioned at the time this EIS is being prepared. The Dublin Crossing plan includes residential (14% single family, 31% townhomes), retail and multifamily (5%), office/hotel (5%), civic (3%), open space (26%), school (4%), and infrastructure (11%) land uses. These land uses are laid out such that higher density housing is emphasized adjacent to Dublin Boulevard, Dougherty Road, and core open space areas and interspersed with single-family residential housing and open space. The highest density housing is co-located with commercial land uses, the largest of which is associated with the proposed transit village on the south side of Dublin Boulevard. Civic areas are well integrated with open space. A conceptual plan for the land uses proposed within Dublin Crossing is provided in Appendix B, Figure 2-3. Specific and definitive changes in land use zoning for the Dublin Crossing area would be addressed by the City of Dublin. It is anticipated that an EIR will be prepared by the City of Dublin, under the CEQA for the change in zoning.

2.1.2.2 Building Locations - Southern Cantonment Area, Proposed Action

Final decisions on specific Dublin Crossing buildings and their locations will not be made as part of this EIS since the Dublin Crossing proposal will be subject to analysis in an EIR under CEQA and the City of Dublin's approval process.

2.1.3 Training Area - Proposed Action

Under the Proposed Action, the Camp Parks Training Area would be reduced by 45 acres. Otherwise, its location, facilities, and types of training performed (as described in Section 2.2.3) would remain unchanged. Military use areas and specific activity sites would also remain unchanged. A small number of Training Area facilities would be replaced each year, associated primarily with Range Control and firing ranges, in approximately the same locations and configurations as current facilities. While most construction would occur on previously disturbed and developed sites, up to five acres of non-native grassland may be affected in the Training Area during Master Plan implementation due to replacement of Training Area facilities.

The frequency and duration of training activities and the number of people who participate in these activities currently fluctuate unpredictably in response to national military activity and ad hoc annual planning of various units. Under the Proposed Action, the frequency and duration of training activities and the population performing these activities could possibly increase in response to installation population increases, although many California units already use Camp Parks for some portion of their field training. Because there is no way to predict future use of the Training Area from past data, this EIS assumes that use of the Training Area would increase by 25 percent in direct response to implementation of the Master Plan. This means that the 89,493 people estimated to use the Training Area in FY04 would increase to 111,866 people per year with full implementation of the Proposed Action. The assumption considers that classroom square footage would nearly double at Camp Parks, but assumes that only one fourth of the people using classrooms for training would also participate in field training in the Training Area. This assumption was made because the nature of a field training experience precludes scheduling field exercises too close together in either time or space.

2.2 SLOW GROWTH ALTERNATIVE

Under the Slow Growth Alternative, the vision for Camp Parks would be similar to that described for the Proposed Action, although the assumed construction timeframe would be 2013 to 2043. Thus, similar land uses would be aggregated and buildings would be efficiently clustered. However, the land exchange would not occur, and Camp Parks would not receive funds from the exchange for redevelopment. There would be no development planned for the southern Cantonment Area, though it would remain open to future development plans. Facility/activity upgrades would be prioritized and dependent on annual funding from Military Construction Army Reserve (MCAR) allocations and project proponents. Regular facility replacement/refurbishment and restoration activities would continue as part of normal installation operation throughout Camp Parks, and MCAR funds would be applied toward planned facilities as they became available. The 2013 to 2043 construction timeframe is approximate and it is possible that a few facilities would be developed prior to 2013 if funds became available. The CSTC would proactively seek projects that fit within the Camp Parks Master Plan vision and group appropriate types of activities into the land use areas planned for them. Under this scenario, Camp Parks would retain all its land holdings and move toward developing the

facilities and activities identified in the Master Plan. Considerably more time would be needed for implementation, and some aspects of redevelopment might never be funded.

2.2.1 Northern Cantonment Area - Slow Growth

The goal for development in the 362 acres of the future northern Cantonment Area would be the same as proposed under the Proposed Action. However, because of low and unpredictable funding, full implementation of the Master Plan is assumed to take twice as long (40 years) to achieve. It is assumed that no development would occur during the first five years to allow proposed projects to move through the funding process, and then development would be spread equally across the remaining 35 years at about 3 percent per year. In the interim, current activities would continue to occur in the facilities that currently support them until money became available to construct the new facilities identified in the Master Plan and discussed in detail in Section 2.3.

2.2.1.1 Land Use Categories - Northern Cantonment Area, Slow Growth

The five land use categories identified in the Future Land Use Plan and discussed in Section 2.1.1.1 would be applied to the northern Cantonment Area under the Slow Growth Alternative as well as under the Proposed Action. Since existing old buildings would remain until money to replace them became available, the shift toward buildings that are compliant with the land use categories would be very gradual.

2.2.1.2 Building Locations - Northern Cantonment Area, Slow Growth

Current facilities identified in Appendix A, Table 1-2 would remain until funds became available to implement the Master Plan over time. As noted in Appendix A, Table 2-2 and discussed in Section 2.1.1.2, some buildings would be retained but the majority of the existing facilities would be demolished as new facilities would be constructed over time to conform to the assigned land use categories. The building locations under the Slow Growth Alternative are assumed to be ultimately the same as under the Proposed Action.

2.2.2 Southern Cantonment Area - Slow Growth

Under the Slow Growth Alternative, the southern Cantonment Area would be retained in federal ownership. There is no development planned in this area under the current Master Plan. The site would remain open to future planning opportunities.

2.2.2.1 Land Use Categories - Southern Cantonment Area, Slow Growth

Rather than being developed as Dublin Crossing (Section 2.2.2), the land in the southern Cantonment Area would be designated as an opportunity site for additional development plans. As new buildings would be constructed according to the Master Plan, previously occupied buildings in the southern Cantonment Area would be demolished and the grounds reclaimed. Until additional development occurred, this area could serve as a buffer between Camp Parks and the development along Dublin Boulevard and the BART station. Such a buffer would provide some privacy for activities on Camp Parks and complement the new Campus Area. The existing gate entry in this area would be

maintained and serve as secondary access. Modification of this area under the Slow Growth Alternative would need to be evaluated under a future NEPA document; it is not included as a part of this alternative.

2.2.2.2 Building Locations - Southern Cantonment Area, Slow Growth

No buildings are currently proposed in the southern Cantonment Area under the Slow Growth Alternative. Existing buildings would remain until they are no longer functional or construction were proposed in the future to replace the buildings.

2.2.3 Training Area - Slow Growth

The Camp Parks Training Area location, facilities, and types of training performed would remain unchanged, although the intensity or duration of training could eventually increase as discussed in Section 2.1.3. As for the Proposed Action, a 25 percent increase in Training Area use is assumed for the Slow Growth Alternative. This means that the 89,493 people assumed to use the Training Area in FY04 would increase to 111,866 people per year with full implementation of the Slow Growth Alternative. However, the increase would be spread over 40 years rather than the 20 years assumed for total completion of Master Plan implementation under the Proposed Action. As with the Proposed Action, replacement of Training Area facilities would occur primarily at existing locations, with up to five acres of non-native grassland affected.

2.3 NO ACTION ALTERNATIVE

The No Action Alternative assumes no change from the current situation. Under the current situation, there is no comprehensive plan or vision for overall Camp Parks development. Rather, decisions are made as money from the general budget becomes available or proponents fund their own proposals that are approved within the Camp Parks infrastructure. New activities (including academic, field training, and readiness activities), activity modifications, new facilities (including structures, utilities, and other assets), facility upgrades, or new tenants would continue to be subject to these monetary constraints.

Thus, for the most part under the No Action Alternative, facilities would remain in their current condition or be replaced in kind when a facility outlives its economic value and funds for replacement are available. This means that facility replacement/refurbishment (e.g., maintenance and upgrading of buildings, roads, sidewalks, parking lots), restoration activities (cleanup of hazardous substance sites), and replacement and upgrading of training facilities (especially around the firing ranges) would continue as part of normal installation operations. Any new facilities that were constructed would be located at ad hoc locations that would not be associated with a land use plan. The southern Cantonment Area would remain in federal ownership as part of the overall Cantonment Area. Facility construction could occur there on an ad hoc basis, based on proponent need and without adherence to a land use vision. The Training Area would continue to foster field training and readiness activities. Under the No Action Alternative, the military use areas and specific activity sites would be expected to remain and continue to

be used in the same way. The frequency and extent of their use would continue to be responsive to military training needs, and any eventual facility upgrades would be evaluated under NEPA as they occurred.

2.4 ALTERNATIVES NOT CONSIDERED IN DETAIL

Finalization of the Master Plan and development of the three alternatives considered in this EIS were preceded by more than two years of intensive planning that followed several decades of Camp Parks' use as a USAR post. The alternatives developed during this process were removed from the list of viable alternatives, primarily because the land use of one or more of their components was too large, interrupted the contiguity of other land uses, or intruded upon the Dublin Crossing area. The considerations during this process are summarized briefly below.

The value of Camp Parks as a mobilization and training center was recognized as long ago as 1980. At that time, the site was reactivated as Camp Parks, after a varied history and the construction of buildings that were never intended to be permanent. The state of disrepair of most of the buildings at Camp Parks, the presence of incompatible or inefficient adjacent land uses (within Camp Parks and between Camp Parks and adjacent community developments), and ill-defined growth boundaries between designated use areas provided a growing impetus for land use planning.

Two sets of alternatives were considered, one in December 2001 and another in May 2002. The December 2001 alternatives were the culmination of a year-long process, which began with a planning charrette. The final concept plan from these December 2001 alternatives differed from earlier thoughts in that it split the housing into two areas slightly divided by an open space buffer, modified the layout and integration of land uses between the housing area and 8th Street, increased the size of the installation support and recreation area, and moved the recreation area and portions of the maintenance/warehouse area and operations/training area to the north of the FCI. The final concept plan, which supported a "campus plan," maintained an open feeling and long-range flexibility. It essentially became Option 1 of the May 2002 set of alternatives except that, by May 2002, housing was consolidated into one area and the other housing area was given up to sports fields and the DSRSD.

By May 2002, four further modifications of the land use plan had been developed (Options 2–4, plus 4a) because Option 1 had an interior housing location, impacted range training, and separated industrial functions—characteristics that were considered undesirable. The subsequent alternatives reflected various locations for housing and associated facilities, the Campus Area, the main gate, and installation support facilities, including the headquarters building. All but Option 4a were rejected because, even though their configurations differed, they had an interior housing location (Option 2), impacted range training (Options 2 and 3), separated housing from the sports fields (Option 2), limited long-range flexibility (Options 3 and 4), lost the campus plan (Option 4), or lost the open feeling (Option 4). In the final Option (4a), the campus was moved to the east, displacing the Camp Parks Headquarters, the sports fields, and the CAARNG; the main gate was moved to Dougherty Boulevard; the Camp Parks Headquarters was

relocated to 10th Street; the CAARNG was moved to the east of the campus area; and the sports fields were moved adjacent to housing. Option 4a was further developed and refined to become the Proposed Action that is described more fully in Section 2.1, even though it was considered to have lost the open feeling and have minimal long-range flexibility.

The various alternatives considered prior to Option 4a were reviewed and then rejected by the Army. These alternatives were also briefly reviewed as part of the Preliminary Draft EA that preceded this EIS, and then rejected for similar reasons. These various early development scenarios are not considered further in this document.

3 EXISTING ENVIRONMENT

A description of the existing environment associated with Camp Parks is provided in this chapter of the EIS. Once the air resources have been discussed (Section 3.1), the remaining resources are presented in a sequence of their ecological interrelationships, with geology and its associated disciplines (Section 3.2) followed by discussion of water (Section 3.3), soils (Section 3.4), vegetation (Section 3.5), fish and wildlife (Section 3.6), and the numerous disciplines associated with human habitation of the environment (Sections 3.7-3.13).

The following information has been taken from the 2004 Master Plan, data in the files of the Camp Parks environmental office (Camp Parks 2002-2005), and other sources that are specifically cited in the text or are generally available.

3.1 AIR RESOURCES

This section examines factors affecting air resources in the San Francisco Bay Area (Bay Area) generally and at Camp Parks specifically. It discusses the effects regional climate and geography have on pollutant formation and transport, the regulatory structure governing air pollution control programs at the national, state and regional level, and characterizes air quality in terms of attainment status and Camp Parks-generated emissions.

The Bay Area is a large, shallow basin on the Pacific Ocean surrounded by hills that taper into a series of inland valleys. This topography results in climatological variability, and provides the Bay Area air basin with considerable potential for trapping and accumulating air pollutants. The Bay Area air basin includes San Francisco, portions of Sonoma and Solano Counties, and all of San Mateo, Santa Clara, Alameda, Contra Costa, Marin, and Napa Counties.

Camp Parks is located in Alameda and Contra Costa Counties, in the Livermore-Amador Valley portion of the Bay Area air basin. It is subject to federal, state and local air quality regulations. At the local level, activities conducted at Camp Parks must comply with the air quality regulations of the local air pollution control district, the Bay Area Air Quality Management District (BAAQMD).

3.1.1 Climate

The Bay Area's location in the middle latitudes and on the west coast of the North American continent places it in the Mediterranean climate type. A semipermanent high-pressure system that remains near the coast of California during the summer, the cool waters of the Pacific Ocean, and the upwelling of cold water along the California coast serve to moderate the area's climate. The Bay Area climate is characterized by moist, mild winters and warm, dry summers. Camp Parks is located about 40 miles inland from the Pacific Ocean in the Livermore-Amador Valley area. The valley is surrounded on all four sides by hills, ranging from 1,000–2,000 feet in elevation, which tend to block much of the marine air from the valley.

3.1.1.1 Temperature

Summertime in the Bay Area is characterized by cool marine air and persistent coastal fog, with average maximum temperatures between 60 and 70°F and minimum temperatures between 50 and 55°F (Golden Gate Weather Services 2002). Summertime temperature gradients across the region are generally from northwest to southeast, with the warmer readings farthest from the coast and in the wind-sheltered inland valleys east of the bay. These differences are enhanced by a strong afternoon and evening sea breeze that is a result of temperature and pressure differences between the Pacific Ocean and California's interior valleys. Winter temperatures are quite temperate, with average highs between 55 and 60°F and lows between 45 and 50°F.

Average temperatures in the immediate vicinity of Camp Parks generally fall near the normal range of regional temperatures. Average summer temperatures in the Dublin and Livermore area range from approximately 50 to 90ºF, with a seasonal mean of approximately 71°F (IDcide 2008). Average winter temperatures range from approximately 35 to 65ºF, with a seasonal mean of approximately 48ºF (IDcide 2008).

3.1.1.2 Precipitation

Over 80 percent of the Bay Area's seasonal rainfall of approximately 21.5 inches falls in the winter months between November and March. Winter rains on the California coast result primarily from weather fronts that impact the region on a trajectory from the west-northwest to east-southeast. The occurrence of rainfall during the early spring and fall is relatively rare. Rainfall from May through September is infrequent, with an aggregate of less than an inch, or about five percent of the yearly average total. The occasional off-season rains that do occur are usually the result of weak early or late season fronts, or periodic surges of subtropical moisture from the south. Snowfall is rare in the Bay Area, with only ten documented instances of measurable snow at San Francisco's official observing site in the past 143 seasons.

Within only a few miles of San Francisco, average annual rainfall can differ by as much as 20 percent. The recent annual average rainfall in the Dublin and Livermore area is approximately 17 inches, slightly less than in areas closer to the coast, although long-term data from 1980–1993 show an average of approximately 14 inches. Monthly rainfall during the winter months can be significant, with an average of 2.9 inches falling in January. By contrast, an average of less than 0.01 inches of rain falls in July.

3.1.1.3 Wind and Dispersion

The wind pattern in the Bay Area is generally characterized by a strong afternoon and evening sea breeze that is a result of the temperature and pressure differences between the Pacific Ocean and California's interior valleys. These westerly winds are channeled through breaks in the high terrain of the Coastal Range, reaching a maximum during the afternoon, with speeds typically ranging between 20 and 30 miles per hour (mph). Because the mountains on the eastern side of San Francisco Bay tend to block much of the marine air from the valleys, wind speeds in the valleys are generally much lower. For

example, monitoring stations in Concord and Danville report annual average wind speeds of 5 mph. However, the area's location on the eastern edge of the Crow Canyon gap due west of Camp Parks can cause wind speeds in and around the San Ramon area to be significantly higher.

As illustrated in the wind rose from a Livermore monitoring station (Appendix B, Figure 3-1), the winds in the vicinity of Camp Parks blow from a predominantly west-southwesterly direction, especially in the spring and fall seasons. The wind shifts direction during the summer, predominantly coming from the west. During the winter months, the wind predominantly comes from the northeast.

The meteorological and topographical factors that restrict airflow contribute to the formation of surface-based temperature inversions that occur during both summer and winter and affect the dispersion of pollutants. In summer, a semipermanent high-pressure system situated near the coast of California causes frequent temperature inversions throughout the Bay Area. In winter, the ground loses heat at a relatively rapid rate on clear nights, causing air in contact with it to cool and form temperature inversions that also impede the dispersion of air pollutants.

As a result of these temperature inversions, the potential for buildup of air emissions in the inland valley areas of California is relatively high. In the summer months, ozone precursors originating in cities near the Bay Area and the Central Valley are transported into the Livermore-Amador Valley area, combining with emissions from local motor vehicles to form ozone. In the winter months, motor vehicle emissions and emissions from fireplaces and wood stoves may result in elevated levels of particulate matter. The air quality resulting from this limited dispersion and other factors is discussed further in Section 3.1.2.2.

3.1.2 Air Quality

3.1.2.1 Air Quality Regulations

An overview of applicable air quality regulation and management, addressing the Federal Clean Air Act (CAA), the California Clean Air Act, the Bay Area Air Quality Management District (BAAQMD), and California and National Ambient Air Quality Standards, is provided in Appendix D (D-1: Air Quality Regulations). Also included in the appendix are discussions on (1) sources and effects of criteria pollutants; (2) ambient air quality standards; (3) BAAQMD air quality regulations; (4) ozone attainment plan control measures; and (5) conformity analysis.

For purposes of regulation, air pollution control measures typically focus on whether the pollution originates from stationary or mobile sources. A stationary source can be a major, minor, or area source. Major and minor sources are typically individual discrete facilities such as an industrial or large commercial operation. An electric power plant, a concrete batch plant, and a gasoline terminal are examples of major or minor sources. Area sources are smaller, often widespread, sources that are found throughout an area. They include the many small sources that individually do not emit significant amounts of

pollutants, but which, when added together, make an appreciable contribution to the local emission inventory. Examples of area sources are dry cleaners, gasoline filling stations, residential furnaces, and facilities that use paints, varnishes, and other consumer products. Mobile sources consist of both on-road and non- or off-road equipment. On-road vehicles, which include cars and trucks, are mobile sources designed to be operated on roads and highways. Off highway vehicle (OHVs), also called non- or off-road vehicles and equipment, are mobile sources designed to operate primarily off roads and highways; these sources include construction equipment, boats and ships, trains, aircraft, some recreational vehicles, and lawn/garden equipment.

3.1.2.2 Air Quality Characterization

Ambient air quality standards have been established by the U.S. Environmental Protection Agency (USEPA) and the California EPA (CALEPA) for the following six pollutants, generally known as "criteria pollutants": ozone, carbon monoxide (CO), nitrogen oxides (NO_X, measured as NO_2), sulfur dioxide (SO_2), fine particulate matter, and lead (Pb). The fine particulate matter standard includes two distinct categories: particulate matter with an aerodynamic diameter of 10 micrometers (μm) or smaller (PM_{10}) and particulate matter with an aerodynamic diameter of 2.5 μm and smaller ($PM_{2.5}$).

The criteria pollutants of greatest concern in the Camp Parks vicinity are primarily those in which the California or national ambient air quality standards (CAAQS and NAAQS, respectively) are occasionally being exceeded (ozone, PM_{10}, and $PM_{2.5}$) or have been exceeded in the recent past (CO). In addition, compounds that result in the formation of these pollutants in the atmosphere (precursors) also are a concern. These compounds include reactive organic gases (ROG) (or volatile organic compounds [VOC]) and NO_X for ozone formation, and NO_X and SO_2 for $PM_{2.5}$ formation. The CALEPA standards for most of these criteria pollutants are more stringent than the national standards. The NAAQS and CAAQS are discussed in Appendix D-1: Air Quality Regulations.

3.1.2.2.1 Attainment Status

A geographic area that has ambient air quality data indicating a violation of NAAQS or CAAQS is designated as nonattainment for that pollutant by USEPA or California Air Resource Board (CARB), respectively. An area is designated unclassifiable when the data are incomplete, or attainment if the standard for that pollutant was not violated at any site in the area during a 3-year period.

After being designated attainment for the 1-hour ozone NAAQS in 1995, the Bay Area was redesignated nonattainment for the 1-hour ozone NAAQS in 1998. In March 2001, USEPA again proposed a finding that the Bay Area had not attained the 1-hour ozone NAAQS. In 2004, the EPA made a finding that the Bay Area had attained the 1-hour ozone standard. The 1-hour standard was subsequently revoked by EPA. The Bay Area is currently designated as a marginal nonattainment area for the federal 8-hour ozone

standard. The BAAQMD is not, at present, working on a redesignation request/maintenance plan for the 8-hour ozone standard.

State and federal controls on new motor vehicles and non-road engines, and voluntary efforts to reduce residential wood burning have been implemented to prevent CO from reaching adverse levels. As a result, the Bay Area has not exceeded the national or state CO standard for several years and was redesignated as in attainment (maintenance area) for the 8-hour CO NAAQS in 1998. As part of this redesignation, the USEPA approved the CARB's 1996 CO Maintenance Plan that showed how the area would continue to attain the CO NAAQS through 2010. In 2004, the California ARB submitted an update to the CO Maintenance Plan that showed how the area will continue to maintain the CO NAAQS through 2018, included updated emission estimates, and established new on-road motor vehicle emission budgets for transportation conformity purposes.

For PM_{10}, the Bay Area is currently designated as nonattainment for the CAAQS and as attainment for the NAAQS. For $PM_{2.5}$ the Bay Area is currently not in attainment with the CAAQS and is undergoing review under the NAAQS. On December 17, 2007, the CARB submitted their $PM_{2.5}$ nonattainment area recommendations to USEPA, which included Alameda County as a nonattainment area. In a response letter dated August 18, 2008, the USEPA agreed with CARB's $PM_{2.5}$ nonattainment recommendation for Alameda County. However, the USEPA had until December 18, 2008, to issue their final recommendation, which would become effective approximately 90 days after publication in the Federal Register.

Because Camp Parks is located in a federal nonattainment area for ozone and a federal maintenance area for CO, in addition to the air quality analysis mandated by NEPA and CEQA, federal and state regulations require that a General Conformity review be performed to determine whether the emission increases for these pollutants will impede attainment or maintenance of an applicable NAAQS. This review is performed by comparing the emission increases to the general conformity *de minimis* levels provided in Table 4-1 in Appendix A. Because SO_2, NO_x, PM_{10}, and Pb have been designated as attainment or unclassifiable for the NAAQS, no conformity review is required for these pollutants. Furthermore, because conformity does not apply until 1 year after the effective date of a federal nonattainment designation, no conformity review is required for $PM_{2.5}$.

3.1.2.2.2 Local Ambient Air Quality

The following information is based on 2000 to 2006 monitoring data collected from the Livermore station, the closest air quality monitoring station to Camp Parks (BAAQMD 2007). Measured ambient air concentrations were below the NAAQS, except for ozone. The ozone exceedance is not unexpected, as the Livermore station is located within a designated ozone nonattainment area.

- **Ozone.** The Livermore monitoring station recorded 19 exceedances of the national 8-hour ozone NAAQS (235 micrograms per cubic meter [ug/m^3]) from

2000 to 2006. During that same time period, the station recorded 60 exceedances of the more stringent (180 ug/m^3) 1-hour California standard.

- **Carbon Monoxide.** No violations of either the national or California CO standards were recorded at the Livermore monitoring station from 2000 to 2006.

- **Particulate Matter.** The Livermore monitoring station did not record an exceedance of the national 24-hour PM_{10} standard (150 µg/m^3) from 2000 to 2006. However, during that same period, an estimated 60 exceedances of the more stringent (50 µg/m^3) California standard were calculated. The Livermore monitoring station recorded three exceedances of the national 24-hour $PM_{2.5}$ standard (35 µg/m^3) in 2006. On Dec. 17, 2006, the U.S. EPA implemented a more stringent national 24-hour $PM_{2.5}$ standard, revising it from 65 µg/m^3 to 35 µg/m^3, and revoked the national annual average PM_{10} standard. $PM_{2.5}$ exceedance days for 2006 reflect the new standard.

- **Nitrogen Dioxide.** No violations of either the national or California NO_2 standards were recorded at the Livermore monitoring station from 2000 to 2006.

- **Sulfur Dioxide.** The Livermore monitoring station does not measure for SO_2, however no violations of either the national or California SO_2 standards have been recorded at any BAAQMD monitoring station from 2000 to 2006.

- **Lead.** No monitoring station in California collects samples for lead analysis; therefore, no violations of either the national or California lead standards have been recorded at any BAAQMD monitoring station.

3.1.2.2.3 Camp Parks Air Quality

An analysis of available data indicates that the current quantity of air pollutants emitted from Camp Parks emission sources is well below established regulatory thresholds for both criteria pollutants and hazardous air pollutants (HAPs), and is not considered regionally significant.

Air Emissions Inventory. Most air emissions associated with Camp Parks originate from the operation of boilers/furnaces and from generators. These two source categories account for nearly all of the actual and potential NOx and CO emissions reported in the installation's most recent emissions inventory (Appendix A, Table 3-1). While other activities conducted on Camp Parks do generate emissions (including smoke from live fire training exercises and PM emissions), Camp Parks emissions are anticipated to stay within BAAQMD guidelines.

The most recent air emission inventory indicates that Camp Parks emissions into the Bay Area air basin are regionally insignificant. Total annual NOx and VOC emissions of 3.12 tons per year, total annual CO emissions of 1.33 tons per year, and total annual PM_{10} emissions of 0.16 tons per year enter the air basin as a result of Camp Parks activities. Appendix A, Table 3-1 and Table 3-2 illustrate both the actual and potential criteria

pollutant emissions reported in the 2006 emissions inventory. The 2006 Camp Parks emissions inventory is an in-house update of the original emissions completed by USACHPPM.

BAAQMD Air Permit Requirements. Camp Parks currently has two air quality permits; the permits are issued by the BAAQMD and are for the emergency stand-by generators at building 610 (WARISC) and 520 (new fire station). The tactical generators and heaters are all covered under the CARB Portable Equipment Registration Program. Because the registration identifies the equipment as mobile, it is not subject to stationary source emissions inventory requirements.

Title V Permit Status. Camp Parks is located in the marginal BAAQMD ozone nonattainment area. USEPA has determined that the emission thresholds applicable to the area, which is classified as "marginal," are 100 tons per year of a criteria air pollutant (NOx, SO_2, Pb, VOC, CO, or $PM_{2.5}$); 10 tons per year of any single HAP, or 25 tons per year for a combination of HAPs. In order for a source to be classified as "major" by the BAAQMD and become subject to Title V permit requirements, the potential emissions must exceed any one of these thresholds. Based on the 2006 air emission inventory at Camp Parks (Appendix A, Tables 3-2 and 3-3), both the actual and potential emissions are well below the Title V thresholds. Therefore, Camp Parks is not subject to the requirements of a federally enforceable Title V operating permit.

Toxic Air Contaminant Emissions. An emission inventory was prepared for Camp Parks in 2006. The emission inventory reports included estimates of total actual and potential Hazardous Air Pollutant (HAP) emissions from stationary sources at Camp Parks. Both actual and potential stationary source HAP emissions are currently negligible, with actual emissions estimated at 0.36 tons per year, and estimated potential emissions amounting to 1.70 tons per year. Estimated actual and potential 2006 HAP emissions at Camp Parks are provided in Appendix A, Table 3-3.

Mobile source also emit HAPs, commonly referred to as mobile source air toxics (MSATs), from highway vehicles and non-road equipment. Some of these are known or suspected to cause cancer or other serious health and environmental effects. For example, diesel particulate matter is part of a complex mixture that makes up diesel exhaust and is emitted from a broad range of diesel engines; the on-road diesel engines of trucks, buses and cars and the off-road diesel engines that include heavy duty equipment. In September 2000, the California ARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. People exposed to toxic air pollutants at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. In response to this nationwide hazard, the EPA has conducted an extensive review of the literature to produce a list of the compounds identified in the exhaust or evaporative emissions from on-road and non-road equipment, using baseline as well as alternative fuels (e.g., ethanol, biodiesel, compressed natural gas). The amount of MSAT from sources at Camp Parks is expected to be negligible.

ODC Elimination. Army policy requires the development of an ozone depleting chemical (ODC) elimination plan that addresses requirements imposed by the CAA. An ODC Elimination Plan was prepared for Camp Parks in 2001 (CH2MHill 2001). This plan addresses critical aspects of managing the installation's remaining ODC supply, including: regulations and guidance, development of an ODC Elimination Team, conduct of an ODC inventory, recovery and turn-in procedures, inventory management, and Camp Parks-specific ODC resources. The plan demonstrates compliance with the CAA requirements and Army policy, which is to eliminate the dependency on the commercial availability of Class 1 ODCs by the end of FY2003.

3.2 TOPOGRAPHY, GEOLOGY, MINERALS, AND PALEONTOLOGY

3.2.1 Topography

California has some of the most dramatic topography in the continental United States. The lowest point in the state is Death Valley, which is below sea level, and the highest point is Mt. Whitney, which is 14,494 ft above sea level and part of the Sierra Nevada Mountains.

Camp Parks lies within the California Coast Ranges section of the Pacific Border geomorphic province. This region is characterized by parallel north-northwest trending mountain ranges and valleys developed on folded, faulted, and metamorphosed rock strata of Mesozoic and Cenozoic age (Hunt 1974). The California Coast Ranges are bordered on the west by the Pacific Ocean, on the east by the Central Valley, on the north by the Klamath Mountains, and on the south by east-west tending transverse ranges in the vicinity of Santa Barbara. In the San Francisco Bay area, the highest peaks in the Coast Ranges are in Mount Diablo State Park about 10 miles north of Camp Parks, where Mount Diablo rises to an elevation of 3,849 feet. The area surrounding Dublin and Camp Parks is referred to as the Livermore-Amador Valley, which lies between the Diablo Mountains to the north and the Hamilton Range to the south (ESA 1990).

Camp Parks is characterized by two distinct topographic landforms. The Cantonment Area, south of about 8th Street, is a relatively flat to gently sloping landscape where elevations range from about 325 to 360 feet. North of 8th Street, in the Training Area, the landscape is characterized by rolling hills and relatively steep slopes, where hilltop elevations vary between 650 and 765 feet with valley floors around 500 feet. When the areas that support live-fire exercises were developed, they were altered from their natural, rolling topography. Camp Parks is flanked by two main surface water features that flow southward: Alamo Creek on the west and Tassajara Creek on the east.

3.2.2 Geology

This section discusses the geology of Camp Parks on both a regional and site-specific basis. Discussion topics include geologic history, structural geology and tectonics, rocks units (stratigraphy and lithology), mineral resources, and paleontology.

3.2.2.1 Geologic History

The overall geologic history of the Bay Area is best understood through a series of events that occurred over geologic time in response to particular tectonic episodes. These events, described below, were summarized from the following maps and reports: *Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California* (USGS 1994), *National Assessment of United States Oil and Gas Reserves* (USGS 1995), *Preliminary Geologic Map Emphasizing Bedrock Formations in Alameda County, California* (USGS 1996), *Characterization of Blind Seismic Sources in the Mt. Diablo-Livermore Region, San Francisco Bay Area, California* (Unruh 2000), and *Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California* (USGS 2000a).

3.2.2.1.1 Archean–Upper Jurassic (3,000–175 Million Years Ago [Ma])

Little information is known regarding the Precambrian or Paleozoic basement rocks in the Bay Area, and the geologic history during this time is poorly understood. The western edge of the original Archean craton, or continental land mass, ran across what is now eastern Nevada, and all of California has been accreted, or has grown and become attached, to the continent since that time.

3.2.2.1.2 Upper Jurassic–Upper Cretaceous (175–65 Ma)

During late Mesozoic time, the Bay Area was the outer ridge of a west-facing forearc basin whose main north-south axis was coincident with the Sacramento and San Joaquin Basins. During this time, varied rock suites comprising the Great Valley Sequence and the Franciscan Complex were deposited in an offshore marine environment. Today, these are the oldest rocks exposed in the Bay Area and represent the accreted and deformed remnants of arc-related Jurassic ocean crust, pelagic sediments, and turbidite sequences.

3.2.2.1.3 Paleogene (65–24 Ma)

During Paleogene time, forearc marine sedimentation continued throughout the Bay Area, which was still below sea level. Most of the Paleogene rocks are undivided (i.e., unnamed) sandstones and shales and are in fault contact with the underlying Great Valley Sequence. The Paleogene geologic history is difficult to reconstruct due to sparse outcrop exposures, complicated by extensive younger faulting.

3.2.2.1.4 Neogene–Pleistocene (24–0.01 Ma)

During middle Miocene time (14–13 Ma), the emergence of the Mendocino triple junction in the Bay Area transformed the convergent plate margin into the right-lateral, strike-slip plate boundary that is currently present in California. Regional uplift elevated the land above sea level, and sedimentation was concentrated in a series of northwest trending successor basins that were separated from adjacent highlands by complex wrench and reverse faults. These Neogene successor basins lie east and north of San Francisco Bay, and become progressively younger toward the north.

Camp Parks is located in the Livermore Basin and is bounded by the Calaveras Fault on the west and the Greenville Fault on the east. Other major right-lateral faults to become active during this time include the Hayward and San Andreas Faults to the west of Camp Parks and the Concord Fault to the east. At Camp Parks, the Tassajara Formation (Pliocene-Pleistocene) and the Livermore Gravels (Pleistocene) have local provenance and were deposited during this time. Volcanic tuffs are also associated with these sediments.

3.2.2.1.5 Holocene (0.01 Ma–Present)

Active faulting continues throughout the Bay Area as evidenced by numerous historic and recent earthquakes. Movement along these faults is related to the northward motion of the Pacific plate relative to the westward movement of the North American plate. Holocene deposits at Camp Parks consist of alluvium, colluvium, and landslide deposits.

3.2.2.2 Structural Geology and Tectonics

The geology of the Bay Area has resulted from a complex structural history that includes late Mesozoic to early Cenozoic subduction and accretion, subsequent uplift and detachment faulting, followed by oblique strike-slip and reverse faulting that continues to the present day. The structures that have resulted from these events can be grouped into four provinces or blocks, each with its own distinctive structural trend and style (USGS 2000a):

- San Francisco Bay block, west of the Hayward Fault zone
- Hayward Fault zone, between the San Francisco plain and the Moraga-Miller Creek-Palomares Fault
- Rocks east of the Moraga-Miller Creek-Palomares Fault and west of the Calaveras Fault
- Rocks east of the Calaveras Fault.

Camp Parks is included in the last province, east of the Calaveras Fault. The trace of Calaveras Fault runs northwest through the City of Dublin (Appendix B, Figure 3-2). The Livermore Basin is part of this province and is dominated by northwest trending faults, along with overturned folds related to the Diablo Thrust. Deformation and seismic activity are still very active in the area (USGS 2000a) and evidence suggests there has been as much as 45 miles of strike-slip movement along the Calaveras Fault since the Miocene (USGS 1994). Displacement along the San Andreas Fault zone west of San Francisco Bay is thought to exceed 100 miles (Hunt 1974).

As with most of the strike-slip faults in the Bay Area, the Calaveras Fault in the vicinity of Camp Parks consists of many fault strands across a broad zone that is several miles wide (USGS 1996). Fault strands in this area can be up to 6.2 miles wide. Offset is distributed along the various fault strands that comprise the Calaveras Fault zone and

movement typically changes from one strand to another over time. In the Cantonment Area at Camp Parks, at least nine separate faults strands associated with the Calaveras Fault have been identified as either active or potentially active. Although these faults are related to the Calaveras Fault, several geologists have identified them as strands of the Pleasanton Fault. These faults trend approximately N 30° W. In this report, we will refer to the faults at Camp Parks as the Calaveras Fault zone.

The Alquist-Priolo Earthquake Fault Zone Act of 1972 was established to mitigate the hazard of surface faulting on structures for human occupancy. An active fault, as defined by the Act, is one on which movement has occurred in the past 11,000 years (i.e., during or since the Holocene). The Act defines any fault on which movement has occurred over the past 1.6 million years (i.e., during or since the Quaternary) as potentially active. Cities or counties must require a geologic investigation of any area (referred to as an Earthquake Fault Zone) where a structure for human occupancy appears to be sited over an active fault trace. If an active fault is identified, the structure must be set back 50 feet from the fault trace.

In addition to faults, folds are also present in the Camp Parks vicinity. Folds are generally tight to overturned and run obliquely to the Calaveras Fault, with axial trends around N 60° W (USGS 1996). Just west of Camp Parks, the Tassajara Syncline underlies the San Ramon Valley in Alameda and Contra Costa Counties.

3.2.2.2.1 Seismicity

Camp Parks is located within a seismically active region of the California Coast Ranges. There have been numerous historic earthquakes in the San Francisco Bay area of magnitude 7.0 and higher. The two earthquakes that did the most damage are the 1906 San Francisco earthquake (M 8.3) and the Loma Prieta earthquake (M 7.1) in 1989. The epicenter of the Loma Prieta earthquake was near Loma Prieta Peak in the Santa Cruz Mountains, about 10 miles northeast of the town of Santa Cruz, California. This earthquake caused $6 billion in damages and severely damaged freeways in Oakland and San Francisco.

Overall, the San Andreas, Hayward, and Calaveras Faults are the most active in the region. Both the Hayward and Calaveras Faults were active in the Oakland metropolitan area in the 1860s: the Hayward Fault experienced up to 6.6 feet of right-lateral surface rupture during the 1868 earthquake estimated at M 7.0, and the Calaveras Fault probably generated an earthquake of M 5.6 in 1861 epicentered in the San Ramon Valley (USGS 2000a).

The U.S. Geological Survey (USGS) estimates that that there is a 70 percent probability of at least one M 6.7 or greater earthquake, capable of causing widespread damage, striking the San Francisco Bay Area before 2030 (USGS 1999a). While strands of the Calaveras (or Pleasanton) Fault are located within the Camp Parks boundary, there are scores of other faults—both active and potentially active—within a 25-mile radius of the installation. Although the Act defines an active fault as one that has had surface displacement in or since Holocene time, this definition does not mean that faults lacking

evidence of surface displacement in the past 11,000 years are inactive. A fault may be presumed to be inactive based on available geologic evidence; however, the evidence necessary to prove inactivity is sometimes difficult to obtain or may not exist (CDMG 2007). Overall, Camp Parks could be subject to moderate to severe ground shaking during a local seismic event. The California Geologic Survey rates the Camp Parks area as 3 to 4 on a scale of 1 to 9, with 1 being severe ground shaking. In addition to the damage caused by the earthquake itself, ground shaking can also trigger landslides that cause further damage.

Small sequences of low magnitude earthquakes (swarms) have occurred at Camp Parks in the recent past. The Livermore swarm, which encompassed 36 earthquakes of M1.2 and higher, including five earthquakes greater than M 3, occurred in the Livermore Valley in January 2004. The Dublin swarm occurred 3 miles to the north of Dublin in February 2003; the largest event in this sequence was an M 4.2 earthquake. Both the Livermore and Dublin swarms are thought to be associated with the Calaveras Fault (CISN 2005). A third swarm, the San Ramon swarm, occurred 2 miles east of San Ramon in November 2002.

The Calaveras Earthquake Fault Zone (EFZ) cuts through the center of the Cantonment Area. Any development or redevelopment of property for human occupancy within the EFZ would require a geologic study before construction can begin. These geologic studies, required by the Alquist-Priolo Act, must demonstrate that the building site is not threatened by surface displacement from future faulting.

The RCI housing development project was constructed in the area bounded by Dougherty Road on the west, 5th Street on the south, Davis Avenue on the east, and Walmsley Street on the north. The northeast corner of this approximately 1300-foot by 1500-foot parcel lies within the Calaveras EFZ. Since the RCI was for human occupancy, a geologic study of the area was required. This study, which included a geophysical investigation using electromagnetics and ground-penetrating radar in an area designated for trenching, was conducted in December 2003 (URS 2004). An anomaly was detected in the western portion of the area surveyed, which required modification of the planned trench area. A 260 foot–long, 3 foot–deep trench was excavated approximately perpendicular to the EFZ. The materials exposed in the trench were mapped and described as fill material overlying fine-grained alluvium. The subsurface materials were described as continuous, indicating a lack of Holocene faulting. Additionally, the flat-lying nature and absence of significant angular unconformities indicate the site has not been subject to appreciable tectonic tilting during the Holocene. The investigators concluded that there are no active fault traces within the EFZ at the housing location (URS 2004).

3.2.2.2.2 Landslides

Landslides, a general term describing the downslope movement of soil and rock material under the influence of gravity, are a common geologic hazard in the east Bay Area where widespread areas of steep, unstable ground occur in close proximity to populated areas. Landslides are most common during the winter rainy season, but can occur year-round

and are sometimes triggered by earthquakes and ground shaking. In Alameda County alone, over 8,400 landslides have been mapped and identified. The landslides were primarily identified through the examination of aerial photographs, and this information was then loaded into a database maintained by the USGS (USGS 1999b). On aerial photos, landslides can be identified or characterized by the presence of the following: small isolated ponds, lakes and other depressions, springs; abrupt and irregular changes in slope or drainage pattern; hummocky, irregular surfaces; steep, arcuate scarps at the upper edge of the deposit; irregular soil and vegetation patterns; disturbed vegetation; pioneering vegetation communities; and abundant flat areas that may appear suitable for construction sites.

Identifying slopes that are susceptible to landslides involves examining the soil properties and parent bedrock geology and evaluating this information in combination with other factors, including slope, vegetation, climate, seismicity, and hydrology. In general, landslides occur when the pull of gravity on the earth's materials overcomes their frictional resistance to downslope movement. Slope stability is affected by the following factors (USGS 1999b):

- **Type of Earth Materials:** Unconsolidated, soft sediments, or surficial materials will move downslope easier than consolidated, hard bedrock.

- **Structural Properties of Earth Materials:** The bedding orientation of rocks and sediments relative to the slope direction will affect landslide potential, along with the extent and type of fracturing and crushing of the materials.

- **Steepness of the Slope:** Landslides occur more frequently on steeper slopes.

- **Water:** Landslides are generally more frequent in areas of high seasonal rainfall. The addition of water to earth materials commonly: a) decreases their resistance to sliding; b) decreases internal friction between particles; c) decreases cohesive forces that bind clay materials together; d) lubricates surfaces along which slippage may occur; e) adds weight to surficial deposits and bedrock; f) reacts with some clay minerals causing volume changes; and g) mixes with fine-grained unconsolidated material to produce unstable slurries.

- **Ground Shaking:** Shaking during earthquakes can jar and loosen bedrock and unconsolidated material, making them less stable.

- **Type of Vegetation:** Trees with deep, penetrating roots tend to hold surface materials together, thereby increasing stability.

- **Proximity to Areas Undergoing Active Erosion:** Undercutting or downcutting along streams and slope toes makes these areas unstable and susceptible to sliding.

Based upon these criteria, the CDMG has defined areas of relative landslide susceptibility at Camp Parks and the surrounding areas using a scale of 1 (least susceptible) to 4 (most

susceptible). Areas of landslide susceptibility, as well as landslides or possible/questionable landslides that have been identified from aerial photos and/or land surveys are shown on Appendix B, Figure 3-3 (CDMG 1986, 1991). Three definitive and seven questionable landslides, along with ten earth flows and 27 instances of soil creep have been identified at Camp Parks. An earth flow is a mass movement process characterized by downslope movement of water-saturated soil, regolith, weak shale, or weak clay layers over a discrete shear surface within well-defined lateral boundaries. Soil creep is the slowest type of mass movement and is nearly imperceptible to the naked eye. It generally occurs in the top few meters of the surface and is accomplished by expansion and contraction of the soil.

As shown on Appendix B, Figure 3-3, all of the landslides at Camp Parks have occurred in the northern and eastern portion of the Training Area where steeper slopes are present. Most of these upland areas are underlain by the Tassajara Formation, which is composed primarily of mudstone with high clay content. These areas are prone to sliding where slopes are steeper than 4:1 (14.5° or 25 percent) (BSK 1997).

3.2.2.3 Description of Geologic Units

At Camp Parks and in the surrounding area, rocks and unconsolidated deposits of Pliocene (upper Neogene) through Quaternary age are exposed at the surface. These are predominantly sedimentary deposits of local provenance, but also include some interbedded volcanic tuffs. Underlying these outcrops are Cretaceous and Jurassic rocks that form the regional basement in the Bay Area. Bedrock is composed of the lower Franciscan Complex and the upper Great Valley Sequence, which were deposited in an offshore marine environment. The overlying Neogene and Quaternary rocks are terrestrial deposits that accumulated in the Livermore Basin. A brief description of these rock units, from youngest to oldest, is provided below (USGS 1996, 2000b).

3.2.2.3.1 Surficial Deposits

Quaternary deposits are subdivided using two criteria, their age and their depositional environment. The properties of surficial deposits (e.g., density, degree of cementation, ability to transmit earthquake energy, and hydraulic conductivity) are generally altered after they are deposited. These properties affect earthquake-induced ground failures owing to liquefaction, which is the transformation of a saturated granular material from a solid to a liquefied state as a result of increased pore pressure and decreased effective stress. The Quaternary geology and surficial bedrock at Camp Parks are shown on Appendix B, Figure 3-4. The potential for high liquefaction susceptibility associated with these deposits is discussed below.

- **Qhc–Modern stream channel deposits:** This unit includes fluvial deposits within active, natural stream channels. The deposits consist of loose, unconsolidated, poorly to well sorted sand, gravel, and cobbles with minor silt and clay. This unit is present in two small areas along the western boundary of Camp Parks.

- **Qhty–Latest Holocene stream terrace deposits:** This unit includes sand, gravel, silt, and minor clay and is moderately well sorted and moderately to well bedded. The unit has a high susceptibility to liquefaction based on the abundance of sandy, cohesionless sediment, high groundwater levels and the presence of a free face at channel banks, increasing the possibility of lateral spreading (USGS 2000b). This unit makes up a very small percentage of the surface of Camp Parks and is present only along the western boundary.

- **Qhf–Holocene alluvial fan deposits:** This unit is sediment that accumulated from standing or slow moving water in topographic basins. These basin deposits consist of fine-grained alluvium with horizontal stratification and can be interbedded with lobes of coarser alluvium from streams that drained the basin. Groundwater is near the surface in these areas, especially during the rainy season. According to the USGS (2000c), the liquefaction susceptibility of these sediments is medium. Alluvial fan deposits are found in the southern Cantonment Area, west-central part of the Training Area, and along the northwestern and southeastern Camp Parks site boundaries.

- **Qht–Holocene stream terrace deposits:** This unit is composed of stream terrace deposits that were deposited in point bar and overbank settings. They are composed of sand, gravel, silt, and minor clay, are moderately to well sorted and moderately to well bedded. Liquefaction susceptibility is high due to the presence of loose granular deposits and shallow groundwater in these areas (USGS 2000b). This unit occurs in drainages along the western boundary of Camp Parks in the Training Area, as well as in the southeastern portion of the Training Area. It comprises less than 5 percent of the surface area at Camp Parks.

- **Qha–Holocene alluvium, undifferentiated:** This unit is mapped where separate types of alluvial deposits could not be delineated due to complex interfingering of depositional environments or small areal dimensions. Undifferentiated Holocene alluvium is probably composed of intercalated sand, silt, and gravel that are poorly to moderately sorted. This unit is present in drainages, predominately in the northern portion of Camp Parks, and its liquefaction susceptibility is high (USGS 2000b).

- **Qf–Latest Pleistocene to Holocene alluvial fan deposits:** This unit is found on gently sloping, fan-shaped, rather undissected alluvial surfaces. Fan sediment includes sand, gravel, silt, and clay and is moderately to poorly sorted and moderately to poorly bedded. Liquefaction susceptibility is considered low. This unit is found predominately in the eastern and western portions of the northern Cantonment Area.

- **Qoa–Early to late Pleistocene alluvial deposits, undifferentiated:** This unit consists of moderately to deeply dissected alluvial deposits capped by alfisols, ultisols, or soils containing a silicic or calcic hardpan. Liquefaction susceptibility is very low because of the age and density of the sediment (USGS 2000b). This

unit is present in the center of the northern Cantonment Area and in the western portion of the Training Area.

- **Br–Pre-Quaternary deposits and bedrock, undifferentiated:** Primarily Jurassic to Pliocene sedimentary, metamorphic, volcanic, and plutonic rocks and poorly consolidated Tertiary sediment. The unit also includes landslides, talus, other bodies of colluvium, and small stream channel deposits in bedrock that could not be delineated at the scale used by the USGS study (USGS 2000b). The bedrock portions of this unit, which comprise the majority of the Training Area, have a very low liquefaction susceptibility. The landslide and colluvium areas may have a potential for higher liquefaction susceptibility.

The liquefaction susceptibility of the surficial geologic units at Camp Parks was mapped (USGS 2000b) as part of an investigation of the nine-county San Francisco Bay Region. The liquefaction susceptibility of the surficial geologic units/soils (referred to hereafter as "soils") at Camp Parks is further assessed in Chapter 4 and shown on Appendix B, Figure 4-1. The majority of Camp Parks has very low or low liquefaction susceptibility; however, there are small areas of very high, high or medium liquefaction susceptibility in the Training Area and northern Cantonment, and the soils in the southern Cantonment Area are primarily classified as medium liquefaction susceptibility. Most of the previous mass movement activity at Camp Parks has occurred in the northeastern portion of the Training Area, with limited mass movement activity occurring in the southeastern portion of the Training Area. There has been no mass movement activity in the Cantonment Area.

3.2.2.3.2 Tassajara Formation (Miocene and Pliocene)

The Tassajara Formation was first described by Conduit in 1938, and also includes rocks that have been mapped as the Green Valley Formation (USGS 2000a). On Appendix B, Figure 3-4, the Tassajara is shown as undifferentiated bedrock (Br). It consists of poorly consolidated, greenish-gray mudstone with interbedded sandstone, conglomerate and limestone. It outcrops extensively in the northern portion of Camp Parks where it is susceptible to landslides on steep slopes. It is a nonmarine sedimentary deposit that contains two interbedded tuff units that serve as marker beds. The Lawlor Tuff has potassium/argon (K/Ar) date around 4.8 Ma, while the Roblar Tuff is dated at 6.2 Ma.

3.2.2.3.3 Great Valley Sequence (Late Jurassic to Cretaceous)

The Great Valley Sequence underlies Camp Parks and the surrounding area. It has been divided into numerous formations including the Pinehurst Shale, Redwood Canyon Formation, Shepherd Creek Formation, Oakland Conglomerate, Joaquin Miller Formation, and the Knoxville Formation. They are marine sedimentary deposit of varying textures and colors, including shale, sandstone and conglomerate. They are not exposed at Camp Parks.

3.2.2.3.4 Franciscan Complex (Late Jurassic to Cretaceous)

The Franciscan Complex underlies Camp Parks and has been divided into numerous formations and terrains. It is an extremely varied rock suite that was deposited on the ocean floor of a forearc basin. It contains igneous, sedimentary, and metamorphic rocks, including sandstone, shales, conglomerates, chert, limestone, basalt, gabbro, greenstone, serpentinite, eclogite, blueshist, and glaucophane. Melange textures are common and the rocks are highly sheared and altered in places. This complex is not exposed at Camp Parks.

3.2.3 Minerals

Neither Contra Costa nor Alameda County is commonly considered among the important mineral producing counties of California. In 1919, the minerals identified for Contra Costa County included primarily brick, cement, limestone, and miscellaneous stone, as well as asbestos, clay, coal, gypsum, manganese, mineral water, and soapstone; those in Alameda County included primarily asbestos, brick, chromite, clay, coal, limestone, magnesite, manganese, pyrite, salt, soapstone, and miscellaneous stone. Some coal was mined between 1867 and 1882 in the Mount Diablo coal field of Contra Costa County (Perazzo and Perazzo 2005). Today, the industrial minerals stone and rock, sand and gravel, clay, specialty sand, shale, salt, and fill are mined at various locations in Contra Cost and Alameda Counties. A sand and gravel extraction operation to the southwest of Camp Parks is the closest mineral extraction operation.

Mineral resources are scarce at Camp Parks, but include sand and gravel, clay, and potential shows of oil and gas. Any unconsolidated, clastic deposit is potentially amenable to development of sand and gravel resources, including the Quaternary deposits at Camp Parks (Appendix B, Figure 3-4). Since sand and gravel deposits are generally the lowest priced of all mined mineral products, transportation cost from the pit to the point of use becomes a major part of their cost to the consumer. As such, any development of these resources at Camp Parks would likely be only for local construction use. Due to the soft, friable nature of the lithic clasts within the Quaternary alluvium, the unconsolidated material at Camp Parks would probably not meet the stringent specifications for construction-related aggregate, although it could be used as common backfill.

Since clay is a common constituent in the Tassajara Formation, this unit is potentially amenable to development as a resource for the manufacture of brick or tile. Specialty clays, such as bentonite, are not present at Camp Parks, but the clays that are present could be used for a variety of other commercial and industrial purposes such as sealants, liquid dyes, paints, ceramics, absorbents, molecular sieves, cosmetics and medicine.

While there is no record of exploration activity in the area surrounding Camp Parks, oil and gas shows have been reported from Cretaceous and Neogene rocks at other locations in west-central California, primarily in the Sacramento and San Joaquin Valleys. Structural traps such as the Mt. Diablo anticline located about 10 miles north of Camp Parks are potential exploration targets.

3.2.4 Paleontology

Hundreds of fossil collections have been described from the Mesozoic and Cenozoic sedimentary rocks in the east Bay Area. While much of this information is from unpublished sources prepared by geologists working for petroleum companies, Freeburg (1990) provides a partial list of fossil species, both flora and fauna. The USGS is currently preparing a digital database for fossil information collected in the Bay Area. From a collector's perspective, the most interesting fossils in the Camp Parks area are land mammal species found in the Tassajara Formation, the Livermore gravels, and Pleistocene alluvium. Other fossils present in these units include a variety of broadleaf plants and fresh water invertebrates such as mollusks (USGS 1996). Fossil resources have not been identified on Camp Parks.

3.3 HYDROLOGY

3.3.1 Surface Water

Due to the folded and faulted geologic structure of the California Coast Ranges, most of the drainages in the region develop a trellis pattern. Many streams, after following a strike valley, turn and cut across one or more structural ridges before discharging to the Pacific Ocean (Hunt 1974). Drainage from the Great Valley (Sacramento-San Joaquin Valley) crosses the Coast Range only at San Francisco Bay.

Camp Parks is located within the Arroyo de la Laguna drainage basin of the Alameda Creek Watershed, which encompasses approximately 633 square miles. It extends from Altamont Pass and Livermore north to Mount Diablo, south to Mount Hamilton, and west to the outlet of Alameda Creek at the San Francisco Bay. Runoff from the Cantonment Area is conveyed to the Chabot Canal (an improved flood-control channel) through grass swales and a storm sewer system (Appendix B, Figure 3-5). The central portion of the Training Area and the Cantonment Area are drained by an unnamed intermittent stream and a storm water drainage system that eventually flow under Dublin Boulevard and into the Chabot Canal. The Chabot Canal flows southward between Dougherty Road and the BART Station and directs drainage into the City of Dublin storm drainage system, which ultimately flows into Alamo Creek and Arroyo de la Laguna. Arroyo de la Laguna flows southward seven miles to Alameda Creek, which then flows west approximately 17 miles to San Francisco Bay.

Alamo Creek flows just west of Dougherty Road and receives drainage from Camp Parks and other sources. The drainage it receives from Camp Parks comes primarily from the western portion of the Training Area, to the extent such flows are not captured by the storm water system along Dougherty Road. Tassajara Creek flows along or east of the eastern site boundary and captures drainage from the far eastern portion of the Training Area. Tassajara Creek eventually flows into Alameda Creek. Thus, in general, surface drainage flows in a southerly direction across the area.

In the past, a number of man-made surface water impoundments have been created on Camp Parks to provide water storage and recreational opportunities. Several drainage areas that were also dammed in the past to create stock tanks now serve as seasonal wetlands, as livestock are no longer present at the site. Across Camp Parks, there are four permanent ponds that were constructed in the Training Area. There are a total of 50 wetland features on Camp Parks; these are discussed in Section 3.5. In addition, the Davilla Reservoir is located just beyond the northeastern corner of Camp Parks.

A 20-acre portion of the site located in the western part of the southern Cantonment Area lies in the 100-year floodplain of the Chabot Canal (Appendix B, Figure 3-5). The greatest potential impacts of the floodplain area are to the industrial, maintenance, and storage areas located south of 5th Street. Flooding in this area may result from a lack of capacity in the Chabot Canal to contain peak storm water flows. This excess storm water could overflow the canal and inundate the surrounding low-lying areas. Several buildings are located either partially or entirely within the floodplain; however, there is no record of past flooding around these buildings.

3.3.2 Groundwater

The southern part of Camp Parks is located within the Livermore Valley Groundwater Basin: the southwestern section is within the Dublin Subbasin and the southeastern portion is within the Camp Subbasin. In this basin, groundwater is present in multiple aquifers including the Quaternary deposits and the deeper bedrock aquifer in which the local municipal supply wells are screened. The shallow groundwater in the Quaternary deposits occurs in thin, discontinuous perched lenses that are found between 8 and 35 feet below ground surface (bgs) under both unconfined and semiconfined conditions.

The regional direction of groundwater flow is reported to follow topographic features and trend to the south. Localized groundwater flow varies across the site, but is generally in a southerly direction. Rainfall and infiltration from stream channels recharge the shallow aquifer (USACE 2003c). Two test borings were installed at Camp Parks in May 2003, one to 97 feet bgs and the other to 272 feet bgs. The borings were completed as ground monitoring wells and completed at a depth between 90 and 185 feet. Aquifer testing was conducted at both wells. The shallow well failed to produce adequate water to continue the pump test. The deeper well yielded 15 to 20 gallons per minute with 40 to 50 feet of drawdown. This amount of water was determined to be adequate to provide an emergency drinking water supply for the installation (Kleinfelder 2003).

The Livermore Basin also contains deeper confined and semiconfined aquifers. The principal deep bedrock aquifer is the Tassajara Formation, which contains shale layers that restrict vertical movement of groundwater. Pumping of deep wells for municipal water supplies and agricultural use creates a downward vertical hydraulic gradient in the basin (USACE 2003c). The nature and extent of the clay in the Quaternary deposits at Camp Parks and in the surrounding area suggest that there is little interaction between the groundwater in the Quaternary deposits and the deeper aquifers (USACE 2003c).

3.3.3 Water Quality

Surface water quality depends on the mineral composition of rocks within the upper source areas of a stream, the mineral characteristics of materials over which it flows, and the quality of other water contributed from tributaries and groundwater seeps. Additionally, water quality is affected by nonpoint-source discharges, including urban and agricultural storm water runoff. Chemicals present in storm water runoff may include inorganic chemicals and minerals (e.g., metals and salts), oil and grease, synthetic organic chemicals (e.g., detergents and solvents), oxygen-demanding and disease-causing wastes (e.g., animal waste), fertilizers, and pesticides (Camp Parks 2002-2005).

There are limited water quality data available that are specific to Camp Parks. The facility holds a National Pollutant Discharge Elimination System (NPDES) permit for storm water runoff from industrial activities, which requires implementation of best management practices (BMPs) to minimize adverse impacts from regulated activities on surface waters. The permit requires semiannual monitoring of site storm water for fuel, lubricant, and solvent constituents to ensure that industrial chemicals are not present in the storm water. Diesel fuel, metal, and total suspended solid concentrations exceeding target limits have been detected in the site's storm water during water monitoring events.

NPDES Phase II regulations, which took effect March 10, 2003, require construction site operators to obtain a storm water permit for all construction activities that disturb greater than one acre. Operators are also required to obtain permits for smaller construction sites that are part of a common plan of development or sale. The permits require operators to implement BMPs to control erosion and reduce discharges of sediment to surface water bodies. Construction activities that meet these criteria are required to file a Notice of Intent (NOI) to discharge and obtain a construction storm water discharge permit from the State of California Water Resources Control Board.

Shallow groundwater at Camp Parks is generally not of the quality or quantity necessary to provide a source of drinking water, due to its occurrence in perched, discontinuous lenses. Samples of groundwater from areas of Camp Parks thought to represent background conditions were collected during a recent study (USACHPPM 2004b) and found to contain copper, mercury, nickel, selenium, and vanadium exceeding California's environmental screening levels (ESLs) for drinking water. Additional sampling is required to determine if the metals are background values or are the results of an unidentified past industrial activity.

Various site investigations have identified groundwater contamination (metals, solvents, pesticides, and fuels) in some areas of Camp Parks resulting from past industrial activities. Further site investigations and remedial activities are planned or currently underway to characterize and/or remove any identified contamination. Groundwater contamination associated with specific locations at Camp Parks is discussed in Section 3.13.

3.4 SOILS

3.4.1 Soil Types

There are 12 soil orders that have been classified in the world. Ten of the orders are present in California; of these, two are present in Alameda and Contra Costa Counties: vertisols and alfisols. Soils are further classified into subgroups, families, associations and series or mapping units.

There are 14 soil associations in Contra Costa County, two of which occur on Camp Parks: the upland Altamont-Diablo-Fontana Association and the lowland Clear Lake-Cropley Association. The Altamont-Diablo-Fontana Association is present on strong to very steep slopes and is composed of well-drained clays and silty clay loams that formed from weathered soft, fine-grained sandstone and shale. The Clear Lake-Cropley Association is present on level ground to gentle slopes and composed of poorly and moderately well drained clays on valley fill and in coastal valley basins.

There are seven soil associations in Alameda County in the Camp Parks proximity, two of which occur on the installation: the upland Altamont-Diablo Association and the Clear Lake-Sunnyvale Association. The Altamont-Diablo Association soils, which occur on the uplands, are moderately to very steeply sloping, brownish to dark-gray, moderately deep soils on soft sedimentary rocks. The soils of the terraces, alluvial fans, and flood plains at Camp Parks are of the Clear Lake-Sunnyvale Association. They occur on nearly level to steep slopes, are very deep, and are well to imperfectly drained when present in flood plains or basins.

3.4.2 Soil Conditions

Within soil associations are soil-mapping units. There are six soil mapping units in the Contra Costa County portion of Camp Parks and nine soil mapping units in the Alameda County portion. The soil mapping unit characteristics are summarized on Appendix A, Table 3-4 and their occurrence at Camp Parks is shown on Appendix B, Figure 3-6. The engineering aspects of the soil mapping units are presented in Appendix A, Table 3-5.

The soil mapping names discussed below for the two counties are different because the two counties were mapped at different times. Alameda County was mapped in the late 1950s and the Soil Survey was published in 1966 (USDA 1966). The Contra County Soil Survey was published in 1977 (USDA 1977). A change in the nomenclature used by the Survey occurred in the mid 1970s. Therefore, although the mapping units have different letters, they are still the same soil when given the same name and slope range. For clarity, units in the Contra Costa and Alameda County portions of Camp Parks that are the same are shown with the same color on Appendix A, Table 3-4, but retain their unique names in each county.

Of the six soil mapping units in the Contra Costa County portion of Camp Parks, three are in the uplands and within the Altamont-Diablo-Fontana Association. The three

upland mapping units in the Contra Costa County portion of Camp Parks are described below.

- **DdD–Diablo clay, 9 to 15 percent slope:** A small lobe of the unit is present in the southeast portion of the Contra Costa County section of Camp Parks.

- **DdE–Diablo clay, 15 to 30 percent slope:** This unit covers over 75 percent of the Contra Costa County portion of Camp Parks.

- **DdF–Diablo clay, 30 50 percent slope:** This unit is present in northwestern corner of Camp Parks. Runoff is rapid to medium and the erosion hazard is medium to high where the soil is bare.

In general, the Diablo Series consists of well-drained soils underlain by calcareous, soft, fine-grained sandstone and shale.

The three mapping units in the Clear Lake-Cropley Association of the Contra Costa County portion of Camp Parks are found in low terraces, flood plains, alluvial fans, basins, and valley fill. These mapping units are described below.

- **Cc–Clear Lake clay:** There is a minimal amount of this soil type present, along the northwestern margin of Camp Parks. Generally, runoff is slow and there is a low erosion hazard.

- **CkB–Cropley clay:** There is a minimal amount of Cropley clay present. It is found in the western portion of the area in the southwest corner of the Contra Costa County area.

- **Pb–Pescadero Clay loam:** There is a small amount of Pescadero Clay loam at Camp Parks. It is found along the northwest margin of the area. This soil is subject to ponding and surface water runs off slowly.

There are eight soil-mapping units in the Alameda County portion of Camp Parks; four are in the uplands and are within the Altamont-Diablo Association. These upland soil-mapping units are described below.

- **DbC–Diablo clay, 7 to 15 percent slope:** Approximately 15 percent of the soil in the Alameda County portion of Camp Parks is composed of this soil series, which has slow to moderate runoff and a slight to moderate erosion hazard.

- **DbD–Diablo clay, 15 to 30 percent slope:** This soil is well drained and slowly permeable; runoff is moderate. It covers approximately 40 percent of the Alameda County portion of Camp Parks.

- **DbE2–Diablo clay, 30 to 45 percent slope:** The surface water runoff from this soil is medium to rapid and the erosion hazard is severe. It is present on less than 20 percent of the Alameda County portion of Camp Parks.

- **DvC–Diablo clay, 3 to 5 percent slope:** This soil type is present in the southern half of the Alameda County portion of Camp Parks and covers less than 20 percent of this area. Surface runoff is slow to medium and the erosion hazard is slight to moderate.

The remaining four soil-mapping units in the Alameda County portion of Camp Parks are in lowland areas represented by terraces, alluvial fans, basins, and flood plains and are within the Clear Lake–Sunnyvale Association. The lowland soil-mapping units are described below.

- **CdA–Clear Lake clay, 0 to 3 percent slope:** There are four separate locations of this soil series present in the southern half of the Alameda County portion of Camp Parks, three of which collectively represent approximately 10 percent of this area. The fourth location is in the southern Cantonment Area and covers over half of the Cantonment Area. This soil is slowly permeable, runoff is very slow, and drainage is good.

- **CdB–Clear Lake clay, 3 to 7 percent slope:** This soil unit is found in the center and on the eastern side of Camp Parks; it covers less than 10 percent of the Alameda County portion of the site. Runoff is slow and the erosion hazard is slight.

- **Pd–Pescadero clay:** This unit is present in approximately 5 percent of the Alameda County portion of Camp Parks, in the bottom of a north-south trending drainage. This soil is imperfectly drained and is very slowly permeable.

- **Rh–Riverwash:** This unit is located along Tassajarra Creek at the eastern edge of the Alameda County portion of Camp Parks. It is typically gravelly or stony.

Characteristics of these soils related to agriculture and range management for grazing are not discussed in this document since the proposed uses for Camp Parks do not include agriculture or grazing.

The predominant soil type at Camp Parks is clay. In the Contra Costa County portion of Camp Parks, Diablo Clays of varying slope cover most of the area. In the Alameda County portion of Camp Parks, including the Cantonment Area, the Diablo Clay is the most predominant followed by the Clear Lake Clay.

3.5 VEGETATION, INCLUDING SPECIAL-STATUS PLANTS, AND WETLANDS

This section contains a summary of vegetation resources at Camp Parks. Information was derived from multiple sources, including:

- Data in the files of the Camp Parks Environmental Office (Camp Parks 2002-2005)

- Parks Reserve Forces Training Area Electronic Master Plan, 2002 (Nakata 2002)

- Final Integrated Natural Resources Management Plan (INRMP), Parks Reserve Forces Training Area, Dublin, California, 2003–2007 (USACE—Louisville 2003)
- Parks Reserve Forces Training Area, Biological Field Surveys (Booz Allen 2004a; GANDA 2003, 2004)
- Floristic Survey of Parks Reserve Forces Training Area (Steele and Petersen 2005)
- Parks Reserve Forces Training Area Wetland Delineation Report, 2004 (Booz Allen 2004c).

Camp Parks is located in the San Francisco Bay Area subregion of the California Floristic Province (Hickman 1993). The California Floristic Province, which extends from Oregon's Coos Bay to northern Baja California, contains one-fourth of all the plant species in the United States and Canada—61 percent of the species in this province are found nowhere else in the world (Conservation International 2005). The Training Area in the northern portion of Camp Parks is typical of the region and is characterized by rolling hills dominated by grassland habitat. Seep- or spring-fed seasonal drainages scattered throughout the hills collect runoff and support vernally and permanently saturated grasslands, marshes, and ponds. The Cantonment Area in the southern portion of Camp Parks lies on relatively level terrain and is occupied by military facilities with inclusions of grassland habitat that has been highly disturbed and invaded by weedy forbs.

Vegetation communities and wetland types that occur at Camp Parks are discussed in Section 3.5.1. Special status plant species that may occur in these areas are discussed in Section 3.5.2.

3.5.1 Vegetation Communities and Wetland Types

The natural vegetation of Camp Parks is grouped for discussion below using the terrestrial natural communities recognized by the CNDDB (CDFG 2003b),[11] while any special-status plants that may occur in these communities are discussed in Section 3.5.2. The four community types found within Camp Parks are non-native grassland, riparian forest and woodland, marsh, and northern claypan vernal pool (Appendix B, Figure 3-7), in addition to developed/landscaped areas. These vegetation communities are described below. Scientific and common names of plant species known to occur or with the potential to occur at Camp Parks are provided in Appendix A, Table 3-6. The species listed as occurring at Camp Parks have been documented between 2001 and 2004 during floristic inventories (Steele and Petersen 2005) and plant surveys (Booz Allen 2004a; GANDA 2003, 2004).

[11] *Based on Sawyer and Keeler-Wolf 1995 but structured to be compatible with previous CNDDB lists (e.g., Holland 1986).*

3.5.1.1 Non-native Grassland

Non-native grassland is composed of annual grasses, with cover ranging from sparse to dense, and associated species of native and non-native flowering forbs (Holland 1986, Sawyer and Keeler-Wolf 1995). Non-native grassland usually occurs on fine-textured soils that are moist or very wet during the winter rainy season and very dry during the summer. This habitat type generally ranges from sea level up to 3,000 feet in elevation and is distributed throughout the valleys and foothills of most of California.

Non-native grassland is the primary plant community found at Camp Parks, covering approximately 2,109 acres. Of this, in the Cantonment Area, 261 acres of non-native grassland are found in empty lots that are undeveloped or from which buildings have been removed, thus they are ruderal[12]. This area is flat or gently sloped and the lots are mowed and, in some cases, disked. Some of this area is landscaped and dominated by cultivated ornamental vegetation and lawns, which typically do not support communities of diverse or important plant species. Dominant grasses include Bermuda grass, slender wild oat, ryegrasses and several barley species. Associated annual forbs include primarily non-native plants such as black mustard, short pod mustard, bristly ox-tongue, alkali mallow, and the highly invasive yellow star-thistle.

In the Training Area, most of the non-native grasslands are not typically mowed or disked, with the exception of some designated areas mowed for training activities and firebreaks disked or scraped annually. Training activities that impact the area are described in Section 3.9.1.3. Both wildland fires and planned burns also affect the grasslands. Between 1992 and 2003, fires occurred in over 50 percent of the years, with approximately 1,300 acres burned (with some areas burned more than once) during this 11-year time frame. Most of these fires were planned (for training or to minimize wildland fire), but the largest fire recorded in this time period (442 acres) was a wildland fire that started off site and spread across the eastern portion of the Training Area during 2003. These burned areas are quickly revegetated by non-native grassland. These grasslands are dominated by slender wild oat, wild oat, soft chess, ripgut brome, barley species, rattail fescue and ryegrasses. Associated species include fiddleneck, white clover, and annual fireweed.

3.5.1.2 Riparian Forest and Woodland

Riparian forest and woodland is composed of a dense growth of broad-leaved deciduous trees, mainly cottonwoods and willows, generally with a closed canopy (Holland 1986, Sawyer and Keeler-Wolf 1995). A dense understory is characteristic. This community is found along the frequently flooded banks of intermittent to permanent low-gradient streams throughout the Central Valley. At Camp Parks, this community covers

[12] *Referring to sites that are weedy and altered from their natural condition by human cultivation or other disturbances.*

approximately 15 acres, with additional riparian vegetation found interspersed in 14 acres of wetlands (Appendix B, Figure 3-7 and Figure 3-8). The community is poorly developed and limited in area, consisting of small stands dominated mainly by Goodding's black willow.

3.5.1.3 Wetlands

Wetland descriptions are based on information from the Parks Reserve Forces Training Area Wetland Delineation Report, 2004 (Booz Allen 2004c). The wetland delineation work conducted in April 2003 and July 2003 is summarized in Appendix A, Table 3-7 and Appendix B, Figure 3-8. The delineation protocol followed the routine three-parameter wetland determination method described in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987). This protocol requires positive indicators for vegetation, soils, and hydrology to determine the presence of wetlands.

During a site visit by the USACE, San Francisco District in February 2004 to verify the initial delineations, one additional wetland was identified and delineated, and several other wetlands were redelineated to more accurately reflect wetland boundaries. As a result, a total of four permanent ponds and 46 other wetlands were ultimately delineated at Camp Parks, occupying 58 acres (Appendix A, Table 3-7; Appendix B, Figure 3-7 and Figure 3-8). During the Camp Parks site visit by the USACE, nine of the 50 wetland sites were determined to be nonjurisdictional wetlands (i.e., they had no apparent hydrologic connection to any waters or tributaries or were not adjacent to such areas). These include Wetlands #8, 15, 22, 23, 38, 39, 44, 45, and 46 (Appendix B, Figure 3-8).

Wetlands include areas dominated by perennial emergent plant species on sites that are permanently flooded (Holland 1986, Sawyer and Keeler-Wolf 1995), as well as seasonal wetlands (other than vernal pools) that are inundated for some part of each year and that support hydrophytic vegetation. In addition to seasonal wetlands described below, there are open water wetland components, including 3.9 acres of ponds (Wetlands #1/Pond A, 7/Pond B, Pond C and Pond D) and 3.3 acres of streams (Wetlands #50).

3.5.1.3.1 Seasonal or Permanent Seep/Spring Wetland

Throughout Camp Parks (and the entire region), seeps and springs occur on both hills and bottomlands. Many of these seeps and springs provide enough water on an annual basis to support hydric soils and hydrophytic vegetation. These wetlands are found predominantly on lower slopes and bottomlands at Camp Parks, covering 26.7 acres. The dominant plants in the seep/spring wetlands include Baltic rush, iris-leaved rush, common rush, tall nutsedge, common three-square, curly dock, and creeping ryegrass. Soils include gleyed Diablo Clays or Clear Lake Clays.

Wetlands were considered jurisdictional by the regulatory agencies if they are connected to navigable waters. At Camp Parks, most of these features have a hydrologic connection to navigable waters via the many seasonal drainages fed by these seeps and springs. Twenty-two wetlands (# 2, 3, 4, 8, 9, 16, 17, 18, 19, 21, 24, 25, 27, 36, 41, 42, 43, 45, 46,

48, 49, and 1 [Pond A]) are at least partially within this wetland type. Of these, three (# 8, 45, and 46) are non-jurisdictional.

3.5.1.3.2 Seasonal Stream Wetland

A few seasonal streams, generally fed by seeps or springs, occur at Camp Parks. In some cases, these seasonal streams do not support wetland vegetation and would therefore be considered "other waters" rather than wetlands. Wetlands developed in areas adjacent to these seasonal streams, but occurring outside of the streambed, are categorized as seasonal stream wetlands to differentiate them from the seep/spring wetlands located immediately around a source seep or spring. These wetlands occupy 10.8 acres. Dominant plant species that occur in seasonal stream wetlands include Baltic rush, iris-leaved rush, curly dock and creeping ryegrass. Soils include gleyed Diablo and Clear Lake Clays with a chroma of 1. Ten wetlands (## 3, 10, 11, 12, 13, 19, 20, 22, 30, and 51) are at least partially within this wetland type. Of these, one (# 22) is non-jurisdictional.

3.5.1.3.3 Permanent Pond Fringe Marsh

There are four permanent ponds at Camp Parks, Ponds A, B, C, and D (Appendix B, Figure 3-8), which were developed as stock watering ponds on seasonal or permanent streams. The four ponds are surrounded by a marshy fringe, covering approximately 7.0 acres. Dominant plant species include cattail and common tule, both of which generally grow in standing water and are indicators of permanent inundation. Other dominants in the pond fringe marsh include spearmint, Baltic rush, common rush, tall nutsedge, and occasional arroyo willow. Soils in these wetlands are gleyed or low-chroma Diablo and Clear Lake Clays. All four ponds (Wetlands # 1 (Pond A), 7 (Pond B), Pond C, and Pond D) are partially within this wetland type. All of these are jurisdictional wetlands.

3.5.1.3.4 Seasonal Pond

The seasonal ponds at Camp Parks are man-made impoundments on seasonal streams and cover 2.7 acres. Dominant plant species in these seasonal ponds include common spikerush, water plantain, and Baltic rush. Soils are the same low-chroma Diablo and Clear Lake Clays that are found throughout Camp Parks. Eight wetlands (#'s 5, 6, 8, 13, 15, 24, 27, and 44) are at least partially within this wetland type. Of these, three (#'s 8, 15, are 44) are non-jurisdictional.

3.5.1.3.5 Ditch Wetland

Man-made ditches at Camp Parks that contain wetland vegetation occupy 3.2 acres. Plant species that dominate the ditches varied widely, primarily due to differences in the amount and annual duration of inundation in each ditch. Species include tall nutsedge, annual semaphore grass, iris-leaved rush, common spikerush, cattail, and curly dock. Wetland vegetation is intermittent in these ditches, interspersed with non-wetland grasses. Soils include gleyed or low-chroma Diablo and Clear Lake Clays.

It can often be difficult to determine whether such ditches are jurisdictional wetlands or not. Man-made ditches created in upland habitats to carry irrigation water or runoff are usually not classified as jurisdictional wetlands, while historic drainages that have been channelized or diverted are usually considered jurisdictional. Eight wetlands (#'s 23, 26, 32, 33, 34, 35, 40, and 47) are at least partially within this wetland type. Of these, one (#23) is non-jurisdictional.

3.5.1.4 Northern Claypan Vernal Pool

The northern claypan vernal pool community consists of low-growth, mainly native, annual forbs that germinate under water and complete growth in late spring as the pool evaporates and the soil dries out (Holland 1986, Sawyer and Keeler-Wolf 1995). Vernal pools are shallow depressions found on relatively flat areas in soils with a subsurface hardpan or packed clay layer that prevents percolation.

Four vernal pools occur on the floodplain of Tassajara Creek and in the Cantonment Area of Camp Parks, covering approximately 0.5 acres. They are inundated during the winter rainy season and dry up during the summer months. Dominant plant species at the four vernal pools included vernal pool allocarya, twelfth rush, annual bluegrass, annual semaphore grass, California coyote thistle, common spikerush, and curly dock. No late-flowering special-status plant species are expected in these pools. Four wetlands (#'s 28, 37, 38, and 39) are at least partially within this wetland type. Of these, two (#'s 38 and 39) are non-jurisdictional.

3.5.2 Special-status Plants

Special-status plants are species that are legally protected under the federal and state Endangered Species Acts (ESAs) as well as species of concern that the Sacramento Field Office of the U.S. Fish and Wildlife Service (USFWS) believes might be in need of concentrated conservation actions (USFWS 2004b). The Sacramento Field Office of the USFWS provided a comprehensive list that included 37 plant species that occur in Alameda or Contra Costa Counties, or are found in the Livermore quadrangle (Appendix E). These were of special-status that fall under one or more of the following categories:

- Federally or state-listed, or proposed for listing, as rare, threatened or endangered (USFWS 2004b; CDFG 2004a)
- Federal candidate for listing or USFWS Sacramento Fish and Wildlife Office species of concern (USFWS 2003a)
- Special Plant as defined by the California Natural Diversity Data Base (CDFG 2005a)
- Listed by the California Native Plant Society in their Inventory of Rare and Endangered Plants of California (Tibor 2001).

Based on information from the above sources, the INRMP (USACE—Louisville 2003), 2003 special status species surveys (Booz Allen 2004a; GANDA 2003, 2004), USFWS (Martin 2004; USFWS 2004b), California Department of Fish and Game (2005a), and an extensive two-year floristic survey of Camp Parks between spring 2001 and spring 2003 (Steele and Petersen 2005), 12 of the 37 species have a moderate to high probability of occurring on Camp Parks (Appendix A, Table 3-8). A species was categorized as having a moderate to high probability of occurring on Camp Parks if its known or expected geographic range includes Camp Parks or its vicinity, suitable habitat is known or likely to occur on Camp Parks, and there are known occurrences within 10 miles of Camp Parks.

To augment the Camp Parks floristic survey (Steele and Petersen 2005) conducted in 2001-2004, special-status plant surveys were conducted in August and September 2003 (Booz Allen 2004a; GANDA 2003) and in April and May of 2004 (GANDA 2004) to identify, quantify, and map all populations of special-status plants within 100 percent of the Cantonment Area and Military Use Areas A, G, and L of the southern Training Area.

Congdon's tarplant and Northern California black walnut were the only special-status plant species observed during summer 2003 and spring 2004 special-status plant surveys (Booz Allen 2004a, GANDA 2003) and the floristic survey (Steele and Petersen 2005) (Appendix B, Figure 3-9). Plant species identified during these surveys are noted in Appendix A, Table 3-6. In addition to Congdon's tarplant and Northern California black walnut, one federally listed species (palmate-bracted bird's beak) that occurs within 10 miles of Camp Parks is discussed below.

3.5.2.1 Congdon's Tarplant

Congdon's tarplant is a yellow-flowered annual herb in the sunflower family (Asteraceae) (CalFlora 2004). It generally occurs in annual grasslands with poorly drained, somewhat alkaline, clay or sandy-loam soils at elevations between sea level and 755 feet (Hickman 1993). It has historic occurrences in Alameda, Contra Costa, Monterey, Santa Clara, Santa Cruz, San Luis Obispo and Solano Counties, but is thought to be extirpated from Santa Cruz and Solano Counties (Tibor 2001). Congdon's tarplant is a USFWS Sacramento Fish and Wildlife Office species of concern and included on California Native Plant Society (CNPS) List 1B (Tibor 2001). Congdon's tarplant is described as severely threatened by development (Tibor 2001), although it has been observed to be tolerant of mowing and some other minor physical disturbances within the grasslands at Camp Parks.

Suitable habitat for Congdon's tarplant covers more than 1,200 acres at Camp Parks and, according to the CNDDB (CDFG 2005a), over 10,000 plants were estimated for this area in 1997. During surveys conducted in the Cantonment and southern Training Area in 2003, approximately 15 acres of Congdon's tarplant were mapped (Booz Allen 2004a). Additional occupied areas are known in the Training Area but are not yet mapped. North of Camp Parks (along Alamo Creek and 1 to 3 miles north of the Contra Costa/Alameda County line) 240,000 plants were estimated to be present in 1998. Additionally, in 2000, a small patch of approximately 26 plants was identified just south of Camp Parks across

Dublin Boulevard in the vicinity of the BART facility (CDFG 2005a). At Camp Parks, most Congdon's tarplant populations can be found in highly disturbed or mowed areas (e.g., ruderal non-native grassland in the Cantonment Area) and along the edges of non-native grasslands (e.g., roadsides in the Training Area). During the surveys conducted in August and September 2003, 46 occurrences of Congdon's tarplant were identified at Camp Parks (Appendix B, Figure 3-9).

3.5.2.2 Northern California Black Walnut

Northern California black walnut is a tall deciduous tree in the Walnut Family (Juglandaceae) with dark, narrowly furrowed bark (CalFlora 2004). It can be readily distinguished from black walnut and English walnut, which are two introduced species that occur in Contra Costa and Alameda Counties. Northern California black walnut grows in deep, alluvial soils, associated with rivers and creeks, in riparian forest or riparian woodland (Hickman 1993; Tibor 2001). Two native stands are known to exist, one of which occurs in Contra Costa County (Tibor 2001). The Northern California black walnut trees documented by CNDDB (CDFG 2005a) in a native setting closest to Camp Parks occur about 13 miles northwest of the installation in Lafayette, California. Northern California black walnut is a USFWS Sacramento Fish and Wildlife Office species of concern and included on CNPS List 1B (Tibor 2001, CNPS 2001).

Northern California black walnut trees were found in three locations within the Training Area totaling 2 acres during the surveys conducted in August and September 2003 (Appendix B, Figure 3-9). It is unlikely that they are naturally occurring based upon their locations. All three stands are small, and introduced trees such as blue gum (*Eucalyptus globulus*) and black locust (*Robinia pseudoacacia*) grow nearby, suggesting that the Northern California black walnut trees may have been planted near homesteads, a common practice that has been documented by California historians. In addition, all of the Northern California black walnut trees found at Camp Parks are growing in upland habitat, mainly on slopes or hilltops, whereas the natural habitat for this species is riparian scrub and woodland (Tibor 2001).

3.5.2.3 Palmate-bracted Bird's Beak

Palmate-bracted bird's beak is a pale gray-green annual herb in the figwort family (Scrophulariaceae) (CalFlora 2004). This species occurs on saline-alkaline soils and is a component of alkali sink scrub vegetation (CDFG 2000). It can be found in relatively undisturbed, seasonally flooded grasslands of the Central and Livermore Valleys (CDFG 2000). Palmate-bracted bird's beak is a Federal and California endangered species and is included on CNPS List 1B (Tibor 2001). The closest known population is in the Springtown alkali sink in Livermore Valley, approximately 6 miles of Camp Parks (CDFG 2000). Given its close proximity to the installation and the presence of suitable habitat at Camp Parks, palmate-bracted bird's beak has a potential to occur at Camp Parks, although neither the special-status plant surveys nor floristic surveys found this species on the installation. On Camp Parks, potential habitat occurs in pockets of moist alkaline soils in or near wetlands that are not as alkaline as the Springtown site, but do

support saline plant species. Areas where potential habitat occurs are all in the Training Area: Wetlands #8 and #10 in Area B, Wetland #26 in Area A, and vernal pools in Area M (Wetland #39).

This species was not found during multiple surveys conducted at Camp Parks, and based on that effort, is not expected to occur on the installation.

3.5.3 Weed Management

Noxious weed species within Camp Parks have recently been identified and currently occur in small numbers. Noxious weeds found on the installation include artichoke thistle, purple star thistle, yellow star-thistle, heart-podded hoary cress, and forked pepperweed.

Vegetation management decisions at Camp Parks are based on the Integrated Pest Management Plan (IPMP), which was implemented in 1998 and most recently updated in 2007 (Strauss 2007). The plan prescribes the control of weeds primarily through mowing, but chemicals are also used when mowing is not successful. All unwanted vegetation is controlled using mowers or weedeaters on a regular basis and also using chemicals in hand or power sprayers. Nonchemical control by mowing, digging, grading and thatching is used initially in problem areas. Herbicides are used for suppression and eradication of unwanted vegetation, including noxious weeds, when nonchemical control is not practical. Chemical-control operations are based solely on need, to avoid environmental and pest-resistance problems caused by overuse of herbicides. Chemical control is the last resort for noxious plant control and is applied in limited areas within the installation. Roundup® (2% glyphosate) is the primary herbicide used to control vegetation.

3.6 FISH AND WILDLIFE

This section contains a summary of the fish and wildlife resources at Camp Parks. Information was derived from multiple sources, including:

- Final Integrated Natural Resources Management Plan, Parks Reserve Forces Training Area, Dublin, California, 2003–2007 (USACE 2003b)
- Parks Reserve Forces Training Area Master Plan, 2002 (Nakata 2002)
- Data in the files of the Camp Parks Environmental Office (Camp Parks 2002-2005)
- Parks Reserve Forces Training Area Biological Field Surveys (Booz Allen 2004a)
- Atlas of the Biodiversity of California (CDFG 2003a)

3.6.1 Fish and Wildlife Habitats and Their Inhabitants

California's large size, varied topography, and mild climate provide a multitude of diverse habitats for fish and wildlife species that contribute to the state's species richness and biodiversity.

The Bay/Delta region includes those counties that border San Francisco Bay or the Sacramento-San Joaquin Delta. The region is mostly hilly with low coastal mountains. Oak woodlands and grasslands dominate most of the natural landscape. Coastal salt marsh is found around San Francisco Bay and transitions into brackish and then freshwater marsh in the Delta. Camp Parks lies within the City of Dublin toward the eastern edge of the Bay/Delta region in the Livermore-Amador Valley of Alameda and Contra Costa Counties. The general area surrounding Camp Parks is adjacent to an area with a high incidence of rare invertebrates (Mt. Diablo) and contains low to medium amphibian and reptile richness, high summer and winter bird richness, high waterfowl richness, and high mammal richness (CDFG 2003a).

Five fish and wildlife habitat types occur on Camp Parks: non-native grassland, marsh (including pond and stream; seasonal pond, streams and wetland; ditch; and seep and spring wetland types), riparian forest and woodland, Northern claypan vernal pool, and developed/landscaped areas. The vegetation community types discussed in Section 3.5 characterize these habitats. The wildlife species associated with these habitats are described below. Scientific and common names of animals known to occur or with the potential to occur at Camp Parks are provided in Appendix A, Table 3-9. Observations of special status and other species of note are shown in Appendix B, Figure 3-10 (invertebrates), Figure 3-11 (amphibians and reptiles), Figure 3-12 (birds), and Figure 3-13 (mammals).

3.6.1.1 Non-Native Grassland Species

The non-native grasslands at Camp Parks provide foraging and breeding habitat, as well as cover, for ground-nesting birds, such as western meadowlark, ring-necked pheasant, and northern harrier; for a variety of rodents, including California ground squirrel, California vole, and deer mouse; and for larger mammals such as badgers, black-tailed jackrabbit, mule deer, and coyote. The occasional trees that grow in open non-native grasslands provide important nesting sites for passerine species such as loggerhead shrike, mockingbird, mourning dove, common crow, and Brewer's blackbird.

Camp Parks also provides foraging habitat for a number of raptors including Cooper's hawk, American kestrel, red-tailed hawk, Swainson's hawk, ferruginous hawk, golden eagle, northern harrier, white-tailed kite, prairie falcon, and western burrowing owl. During the 2003 biological species surveys, raptors commonly observed included white-tailed kites, red-tailed hawks, and, turkey vultures. Two red-tailed hawk nests were located in the Cantonment Area and one red-tailed hawk nest was located in the Training Area during the 2003 biological species surveys (Booz Allen 2004a). A white-tailed kite

nest was located in the Cantonment Area, as well. Most if not all of these raptor nests are in trees that appear to have been planted as ornamentals.

The abundant rodents, in particular, provide prey for predators, such as gopher snake, red-tailed hawk, barn owl, and gray fox. Western burrowing owls, discussed below as a special-status species, use California ground squirrel colonies as nesting sites. Great blue herons have been known to leave their more traditional foraging areas to feed on this readily available prey species. In addition, two of the special-status species discussed below (California red-legged frog and California tiger salamander) can be expected in grassland habitats in the vicinity of wetlands.

3.6.1.2 Wetland Species

3.6.1.2.1 Wet Meadow

Wet meadows are important because they provide habitat for diverse plant and wildlife species that are dependent on the water and/or the habitat they provide. Many of the same wildlife species that occur in the non-native grassland habitat also use wet meadows as a water source or for forage and cover. Species, such as barn and cliff swallows, common garter snake, killdeer and other shorebirds, and raccoons may be attracted to the moist conditions. Because the Pacific Flyway used by waterfowl and numerous other water bird species traverses California, numerous species can be found in such wet meadows during their migration. If sufficient water is available, common amphibians such as Pacific chorus frog may also occur.

3.6.1.2.2 Ponds

Except during severe droughts, the ponds at Camp Parks provide a year-round water source for wildlife species. Mammals such as gray fox, raccoon, striped skunk, California ground squirrel, and opossum, use such ponds to drink. A variety of bird species including California quail, killdeer, barn and cliff swallows, red-winged blackbird and snowy egret, use the ponds. Migratory waterbirds, such as pied-billed grebe, American coot, Canada goose, mallards and ruddy ducks, also use the ponds at Camp Parks, and species such as northern harriers, white-tailed kites, and great blue herons use the ponds as a focal point for foraging. Some of these species may also breed at Camp Parks.

The reptile and amphibian species associated with the wet meadow and riparian habitats described above, as well as other species requiring more persistent water, may also occur in pond habitats (e.g., Pacific chorus frog, bullfrog). Four of the special-status species discussed below (California red-legged frog, California tiger salamander, Western pond turtle, and tricolored blackbird) can be expected in pond habitats at Camp Parks.

3.6.1.2.3 Seasonal Drainages

Wildlife species associated with seasonal drainage habitats are similar to those described above for non-native grasslands and wet meadows.

3.6.1.3 Riparian Forest and Woodland Species

Riparian habitats are recognized as an important community throughout California because of their limited extent compared to their past distribution, their importance to dependent plant and wildlife species, and the threats facing their remaining occurrences. Their value and current status qualify them as sensitive natural communities.

Because the riparian forest has both structural diversity and available water, this habitat likely supports a greater diversity of wildlife species than any other habitat at Camp Parks. Some of the bird species associated with ponds, such as white-tailed kite, red-winged blackbird, use these trees for perching. Songbirds, such as warblers, flycatchers, and scrub jays, occur in the upper and midcanopy of such forests. Birds and mammals, including California quail, gray fox, raccoon, and striped skunk use the understory community. The aquatic habitat component may support a variety of common amphibian species, such as salamander, Pacific chorus frog, and bullfrog, as well as the California tiger salamander and California red-legged frog, discussed below.

3.6.1.4 Northern Claypan Vernal Pool Species

Vernal pools support wildlife adapted to unique living conditions, which range from very wet to very dry each year. Surveys during 2002 and 2003 of these pools and six other wetlands providing potential habitat for vernal pool animal species revealed the presence of two special-status species, the California linderiella fairy shrimp and California tiger salamander in some pools. As summer approaches, the pools begin to dry out causing animals to burrow and fairy shrimp eggs to fall into cracks in the mud.

3.6.1.5 Landscaped/Developed Area Species

Many of the same wildlife species found in the non-native grasslands may also be found in ruderal non-native grasslands interspersed with the landscaped and developed areas of Camp Parks. Because the overall quality of the habitat is lower in these disturbed areas compared to the less disturbed non-native grasslands, fewer wildlife species are likely to be found.

Landscaped and developed areas are not typically considered important habitat for wildlife species. Developed habitat includes buildings and other structures related to installation activities, and paved areas such as roads and parking lots. Wildlife associated with these habitats are those that are typically tolerant of human disturbance and that are often found in urban areas, such as American crow, house sparrow, and house finch. However, in the Camp Parks Cantonment Area, landscaped and developed areas are interspersed with ruderal non-native grassland and occasional tall trees that are in parcels that once contained facilities and that reflect the long and varied uses of this site. Species such as western burrowing owls and loggerhead shrikes are found in this mixed habitat, and white-tailed kites and red-tailed hawks nest where trees are near areas of active use.

3.6.2 Special-Status Wildlife Species

The USFWS Sacramento Fish and Wildlife Office provided a comprehensive list of special status wildlife that occur in Contra Costa and Alameda Counties and in the Livermore Quadrangle (Appendix E). In addition, State species of concern were identified that occur on Camp Parks. Special status animals fall under one or more of the following categories:

- Federally or state-listed, or proposed for listing, as rare, threatened or endangered (USFWS 2004b; USFWS 2005a; Martin 2004; CDFG 2004b)
- Federal candidates for listing or Sacramento Field Office USFWS species of concern (USFWS 2005b; USFWS 1996b)
- California Species of Concern as defined by the California Department of Fish and Game (CDFG 2005b).
- USFWS bird of conservation concern (USFWS 2002).

Of 81 special status animal species identified in the Alameda-Contra Costa County area, 24 have a moderate to high potential to occur at Camp Parks (Appendix A, Table 3-10). Of these, 19 are discussed in more detail below because they are known to occur on Camp Parks or are federally or state listed species. Remaining species are listed in Appendix A, Table 3-10. There are 14 special status animal species known to occur on Camp Parks: California red-legged frog, California linderiella, California tiger salamander, Western pond turtle, Cooper's hawk, ferruginous hawk, golden eagle, Northern harrier, white-tailed kite, prairie falcon, Western burrowing owl, loggerhead shrike, tricolored blackbird, and pallid bat. In addition, five federally or state listed species with the potential to occur on Camp Parks are discussed: four vernal pool shrimp and San Joaquin kit fox.

3.6.2.1 Invertebrates

Potential habitat for several special-status invertebrate species occurs at Camp Parks (Appendix B, Figure 3-10). Vernal pool surveys, consistent with USFWS protocol surveys for determining presence or absence of these species, were conducted in 2002 and 2003 at potential habitat sites. Eight of these sites were in the Training Area, one in the northern Cantonment Area, and one in the southern Cantonment Area (EcoAnalysts 2003a, 2003b). No federal or State listed invertebrates were identified. The surveys were coordinated with the USFWS and 90-day reports presenting survey results were submitted to the USFWS. California linderiella, a fairy shrimp, was found in the Training Area.

3.6.2.1.1 Federally Listed Vernal Pool Shrimp

Four federally listed vernal pool shrimp have the potential to occur at Camp Parks: vernal pool tadpole shrimp, vernal pool fairy shrimp, longhorn fairy shrimp, and Conservancy

fairy shrimp. The four vernal pool shrimp were listed as federally endangered or threatened in 1994 (59 Fed. Reg. 48136 [Sept. 19, 1994]) from loss of habitat converted to agricultural and urban uses (USFWS 1994). They are endemic to California, with the exception of vernal pool fairy shrimp, which extend into southern Oregon. Vernal pool shrimp have been found in small (50-square foot) to large (90-acre) ephemeral, natural and artificial pools (NatureServe 2005), including vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities. Each species has specific wetland requirements. Inactive eggs, known as cysts, remain in the dry pool beds. Some of the cysts hatch as the vernal pools are filled with rainwater in the next or subsequent seasons, while other cysts may remain dormant in the soil for many years (USFWS 2005a).

3.6.2.1.2 California Linderiella

California linderiella was also proposed for Federal listing in 1994, (59 Fed. Reg. 48136 [Sept. 19, 1994]), but was withdrawn from the proposal in 1995 and is now considered a USFWS Sacramento Fish and Wildlife Office species of concern. This is the most common fairy shrimp throughout the California Central Valley and Coast Ranges of California. It has been documented on most landforms, geologic formations, and soil types supporting vernal pools in the state (USFWS 2005b).

California linderiella were observed at Camp Parks (Appendix B, Figure 3-10) during EcoAnalysts (2003a, 2003b) surveys at four of ten potential habitat sites (depicted on Appendix B, Figure 3-10 as Wetland #5, 6, 22, and 37).

3.6.2.2 Amphibians and Reptiles

Potential habitat for several special-status amphibians and reptiles species occurs at Camp Parks (Appendix B, Figure 3-11). Three species, California red-legged frog, California tiger salamander, and Western pond turtle, are known to occur at Camp Parks and are discussed below.

3.6.2.2.1 California Red-Legged Frog

The California red-legged frog, Family Ranidae, is the largest native frog in the western United States. Its size ranges from 4 to 13 cm in length from snout to vent. Adults typically have a red abdomen and hind legs and a brown, gray, olive, or reddish back that has large irregular dark blotches and smaller black flecks. Adult frogs feed on invertebrates, Pacific chorus frogs, California mice, and insects. Adults feed and are active largely at night, whereas tadpoles forage day and night. The California red-legged frog was listed as a Federally threatened subspecies (61 Fed. Reg. 25813 [May 31, 1996]) because it has been extirpated from 70 percent of its historic range and its existing populations are extremely small. California red-legged frogs were historically distributed west of the Cascade-Sierran Crest in California and south to Baja California. Currently, their range includes the coastal areas of central and southern California (USFWS 2005a). It is considered a California species of special concern. Three locations in the Training

Area, totaling 18 acres, are designated as Habitat Management Units that have restricted use and limited access because of their importance to this federally listed species.

Lands at Camp Parks were excluded from critical habitat designations (65 Fed. Reg. 54891 [Sept. 11, 2000], 66 Fed. Reg. 14626 [March 13, 2001], and proposal 69 Fed. Reg. 19620 [April 13, 2004]) under section 4(b)(2), because benefits of exclusion outweighed benefits of inclusion. The April 13, 2006 (71 Fed. Reg. 19244 [April 13, 2006]) final rule does not include Camp Parks lands.

California red-legged frogs prefer dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2.3-feet deep) still- or slow-moving water. Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter. California red-legged frogs require aquatic habitat for breeding, usually laying egg masses during or shortly following large rainfall events from late December to early April. Larvae typically metamorphose between July and September, 3.5 to 7 months after eggs are laid. Adult frogs that have access to permanent water generally remain active throughout the summer. Adults may move both upstream and downstream of their breeding habitat to forage and find refuge. They enter a dormant state during summer or dry weather in small mammal burrows and moist leaf litter (USFWS 1996a, 2004a).

California red-legged frogs have been observed in the Training Area associated with 18 acres of breeding habitat, which are spread among three separate Habitat Management Units at Camp Parks. Other riparian areas within Camp Parks do not meet the habitat requirements for breeding of this species. Jones & Stokes (JSA 1995) first observed California red-legged frogs in 1994 around man-made ponds along drainages in the northern part of the installation. Visual encounter surveys were conducted during the breeding season in 1999, 2000, and 2001 (CDFG 2005a), and annual surveys 2002-2005. Adult frogs were observed every year with three frogs being the maximum number observed during a single survey. Egg masses were observed in 1999. Tadpoles have not been found on Camp Parks. In 2003, Booz Allen Hamilton and Garcia and Associates surveyed the 16 wetlands that occur within or immediately north of the Cantonment Area of Camp Parks (Booz Allen 2004a). California red-legged frogs were not observed during the surveys; however, other amphibians, including bullfrogs and Pacific chorus frogs, were observed (Booz Allen 2004a). Outside Camp Parks, California red-legged frogs were observed in 2000 near the confluence of Tassajara and Moller Creeks and just outside the easternmost boundary of the Training Area (CDFG 2005a) where four adults, 13 subadults, and many tadpoles were observed.

3.6.2.2.2 California Tiger Salamander

The California tiger salamander is a terrestrial salamander in the Ambystomatidae Family. The large (15–22 cm long), stocky salamander is typically black with several white or pale yellow spots and bars and has a broad, rounded snout. The California tiger salamander was listed as federally threatened on August 4, 2004 (69 Fed. Reg. 47212 [August 4, 2004]). It is a CDFG species of special concern.

The California tiger salamander is found only in disjunct remnant vernal pool complexes scattered along the Central Valley and coastal grasslands within California. It has been eliminated from over half of its historic breeding sites and has lost an estimated 75 percent of its habitat (USFWS 2005a). This salamander species inhabits grassland and oak woodland habitats that have scattered ephemeral ponds, intermittent streams, or vernal pools. Adults spend most of their lives underground in the burrows of ground squirrels, pocket gophers, and badgers. After heavy rains (typically in December through February), salamanders migrate from mammal burrows to temporary pools for breeding.

California tiger salamanders have been observed at Camp Parks at two breeding ponds and two upland sites in the Training Area. The CNDDB includes two observations of California tiger salamanders at the installation. An incidental observation of a single aestivating California tiger salamander occurred upon removal of a fence post in the southeastern portion of the Training Area in November 1997. In addition, a number of eggs, larvae, and a few broken egg sacks were observed in Wetland #5 in the northeastern portion of the Training Area in February 2003. Salamanders were also observed in Wetland # 6 during 2003. In 2005, California tiger salamander surveys were conducted by Rana Resources Inc. (sub-contractor of CH2Mhill) on Camp Parks. The surveys consisted of 12 nighttime transect walking and burrow examinations of the installation during rainstorms in January – March 2005, as well as six dip net surveys of installation ponds in March – May 2005. Larvae were only observed in Wetlands #5 and #6. A single upland sighting was made in February 2005 near Pond D, approximately 0.95 miles from the nearest known breeding site. Pond D is not likely a breeding site due to the large number of exotic fish in the pond. Wetlands #5 and #6 provide 1.12 acres of known breeding habitat on Camp Parks. These sightings at these breeding ponds range from 1.3 to 1.6 miles from the closest boundary of the northern Cantonment Area and 1.3 to 1.9 miles from the closest boundary of the southern Cantonment Area. Off post, 275 California tiger salamanders (mostly juveniles with 12 adults) were captured in 2004 in a drift fence along the James Tong-Wallis Annexation, near the installation boundary east of Wetland #5 (Wilkinson 2004). Upland habitat for California tiger salamanders outside the eastern boundary of Camp Parks is being developed.

In addition to the above sightings (Wetland #5 & 6), potential breeding habitat was identified during habitat assessment and California tiger salamander surveys by Rana Resources and includes: Wetland #8, 12, 15, 16, 19, 24, 1/Pond A, 7/Pond B, Pond C, and Pond D.

On August 23, 2005, the final rule that designated critical habitat for the central population of the California tiger salamander exempted Camp Parks from designation as critical habitat because the Environmental Office actively consults with the USFWS and implementation of its INRMP and Endangered Species Management Plan (ESMP) provide a conservation benefit to the species, as well as for reasons of national security and training mission readiness (70 Fed. Reg. 49380 [August 23, 2006]).

3.6.2.2.3 Western Pond Turtle

The western pond turtle is the only native turtle found in California. The western pond turtle is moderately sized, with a typical adult carapace length of 3.5–7.5 inches. It has a low, olive-brown carapace with a network of brown or black spots, lines, or dashes that radiate out from the growth center of each scute (Stebbins 2003). There are two subspecies of western pond turtle: the northwestern pond turtle and southwestern pond turtle; both are USFWS Sacramento Fish and Wildlife Office and CDFG species of special concern.

The western pond turtle is distributed along the coast from British Columbia to Baja California and inland to Nevada and Idaho. Western pond turtles are found in aquatic habitats with slight or slow currents, adequate vegetative cover, and nearby basking areas (logs, exposed banks, and mudflats). They are found in ponds, marshes, rivers, streams, and irrigation ditches that have a rocky or muddy bottom and are typically associated with woodland, grassland, or open forest habitats. To reproduce, aestivate, and overwinter, western pond turtles migrate from aquatic to upland habitat. Turtles mate during April and May and lay eggs from June to August in northern California (NatureServe 2005). They feed on plants, insects, worms, fish, and carrion.

Western pond turtles have been observed in the Training Area at Camp Parks. Although a survey specific to the western pond turtle has not been conducted at Camp Parks, Jones & Stokes (JSA 1995) observed western pond turtles in 1994 around man-made ponds (Wetland #1 and Pond C) in the Training Area. Individuals were observed in 1999 and 2000 in the same location. There is also an August 2000 CNDDB record for four adults in pools within Tassajara Creek adjacent to Camp Parks, and the 11-acre polygon in the database overlaps the Camp Parks boundary (CDFG 2005a). During 2003 surveys for the California red-legged frog (Booz Allen 2004a), an unidentified turtle, which was likely a western pond turtle, was observed in Pond D immediately north of the Cantonment Area.

Two of the California red-legged frog Habitat Management Units (#1 and 3) and Pond C at the south end of Habitat Management Unit #3, a total of 22.7 acres, are potential habitat for the western pond turtle. Restricted use and limited access to the Habitat Management Units benefit the western pond turtle.

3.6.2.3 Birds

Potential habitat for several special-status bird species occurs at Camp Parks (Appendix B, Figure 3-12). Ten bird species are discussed below. All but one of these species, the State listed Swainson's hawk, has been observed at Camp Parks. All birds described below, as well as many additional birds known to occur on Camp Parks (e.g., Western meadowlark, Brewer's blackbird, mockingbird) are protected under the Migratory Bird Treaty Act, which is further discussed in Section 3.6.3.

3.6.2.3.1 Cooper's Hawk

The Cooper's hawk is a medium-sized hawk, ranging from 15 to 20 inches in length and from 24 to 35 inches in wingspan, with females being larger than males. Its tail is long, rounded and barred and its wings short and rounded. Its back is dark gray or gray-brown; its underparts barred horizontally with reddish and white. The Cooper's hawk is a CDFG species of special concern.

Cooper's hawks range from Canada to Central America, breeding from southern Canada into central Mexico and wintering throughout the United States and Mexico. The species is resident throughout California. The Cooper's hawk was once considered common throughout California, but nesting has declined in recent decades, and wintering populations declined steadily from the early 1950s through the mid-1960s, then appeared to stabilize at a much-reduced level in the late 1960s. The decline of Cooper's hawk numbers is attributed primarily to habitat destruction, mainly in lowland riparian areas. Other contributing factors are thought to be direct or indirect human disturbance at nest sites, illegal take of nestlings, and pesticides (CDFG 2005a).

Cooper's hawks generally use woodlands for nesting and hunting. Relative to other accipiters, Cooper's hawks may also use more open woodland habitats where woodlands tend to occur in patches and groves or as spaced trees and may be more tolerant of human activities. This species migrates primarily along ridges and coastlines and may use open woodlands and fields to a greater extend during winter than during summer. In such habitats, Cooper's hawks feed primarily on small to medium-sized birds and some mammals (Cornell 2005).

At Camp Parks, a Cooper's hawk was observed in the northern Cantonment Area during late July 2003. The bird observed could have been a resident or migrant individual.

3.6.2.3.2 Swainson's Hawk

The Swainson's hawk is more slender and narrow winged than the more familiar red-tailed hawk. It has a long, square tail, pointed wings, and can be any of three main color variations (light, rufous, and dark) all observed in California. The wings of all variations are bicolored underneath with dark gray flight feathers and lighter wing linings. The Swainson's hawk is listed as a threatened species by the State of California (April 17, 1983) due to declines in suitable habitat and both localized and statewide declines in population. It is also a USFWS Sacramento Fish and Wildlife Office species of concern and a USFWS bird of conservation concern in California.

The Swainson's hawk occurs throughout the western plains of North America and was once the most common bird of prey in the low grasslands of California. In the 1990s, 550 nesting pairs were found in California and numbers have been slowly declining since then. Today, about two-thirds of the statewide population nests in the southern Sacramento Valley and northern San Joaquin Valley regions. Fall migration patterns for California birds begin in the northern part of the state and extend to Central and South America, as far south as the Patagonia in Argentina. The primary cause of the decline in

Swainson's hawk's population size is believed to be habitat destruction. Much of California's native grassland has been converted to crop fields and pastures.

The Swainson's hawk's basic requirements are large, open grasslands with abundant prey in association with suitable nest trees such as oaks, cottonwoods, walnuts, and willows in the Central Valley. Suitable hunting grounds include native grasslands or lightly grazed pastures, alfalfa and other hay croplands with low-density vegetative cover (to provide hunting grounds where prey is visible). The Swainson's hawk's usual prey includes small mammals such as mice, gophers, ground squirrels, rabbits, and vole, as well as small birds, bats, and insects that it captures while in flight. Swainson's hawks have adapted to hunting in certain types of agricultural lands, which makes them vulnerable to changes in the land's use.

Although the Swainson's hawk has not been observed at Camp Parks, it has a moderate potential to occur, due to the abundant non-native grassland habitat of the Training Area and plentiful prey base. The 1380 records in the CNDDB are spread throughout the state; none are in Alameda County and four are in Contra Costa County. The closest of these observations is 18.5 miles northeast of Camp Parks in the Clifton Court Forebay USGS Quadrangle (CDFG 2005a).

3.6.2.3.3 Ferruginous Hawk

The ferruginous hawk is a large bird with a rust-colored back, shoulders, and legs. The flight feathers, when seen from below, are whitish and lack barring. Immature ferruginous hawks have whitish-colored legs covered with feathers. The ferruginous hawk is currently listed as a USFWS Sacramento Fish and Wildlife Office and CDFG species of special concern.

The ferruginous hawk is distributed throughout western North America. It is found in mixed-grass prairies, semiarid plains, dry mesas, and other dry, open habitats. Currently, grassland habitat has been nearly extirpated in the San Joaquin Valley, with fewer than 150,000 acres remaining. Camp Parks is within their winter range, which also includes southern California, Arizona, New Mexico and Western Texas. The ferruginous hawk's diet includes rodents, cottontails, jackrabbits, bats, reptiles, grasshoppers, and small birds. Habitat destruction, rodent control, indiscriminate shooting, and egg collecting have contributed to population declines throughout their range.

Jones & Stokes (JSA 1995) observed ferruginous hawks foraging in the Camp Parks Training Area in 1994. The Training Area provides winter foraging habitat for ferruginous hawks.

3.6.2.3.4 Golden Eagle

Golden eagles are very large, broad-winged, broad-tailed hawks with a wingspan six to seven feet. They are dark brown with a golden or light brown nape and dark eyes and beak. Legs are feathered to the toes. Females are often noticeably larger than the males. Immature golden eagles have a broad band of white on the tail, while the adult tail is gray

and brown. The golden eagle is a CDFG species of special concern and is protected under the Bald Eagle Protection Act.

The golden eagle can be found in North America, Eurasia, and northern Africa. Its breeding range includes southern portions of Canada and western regions of the United States, and it was once a common resident throughout the open areas of California. The golden eagle is typically associated with mountain forests, open grasslands, and hilly terrain. In general, populations seem stable, although numbers are now reduced near human population centers and only 500 pairs are estimated to nest in California. Existing threats to golden eagle populations stem from habitat destruction, fragmentation, and use of grasslands for agriculture. Pairs mate for life and typically build nests on cliffs or in large trees. Its diet includes small mammals, snakes, other birds, and carrion.

The Santa Cruz Predatory Bird Group observed golden eagles foraging in the Camp Parks Training Area in 1999. A number of additional sightings have also been reported in the Training Area. The Training Area provides foraging habitat for golden eagles; however, Camp Parks lacks suitable nesting habitat.

3.6.2.3.5 Northern Harrier

The northern harrier is a moderately large raptor with a white rump and an owl-like facial disk. Adult males are gray above and mostly white below with black wing tips. Adult females are brown above and whitish below with brown streaking on their breasts, flanks, and belly. Immature individuals resemble adult females, but they are cinnamon on the underside with streaking only on their breasts. The northern harrier is a CDFG species of special concern. It is threatened by habitat destruction and prey reduction.

The northern harrier is distributed throughout North America and is found in California year round. It is typically associated with grasslands, wetlands, and open fields. Wintering habitat and foraging areas in California include fresh and saltwater wetlands, coastal dunes, grasslands, deserts, meadows, and croplands. In summer, it nests on the ground and also forages in these areas. Its diet includes rodents and frogs.

Northern harriers have been observed foraging in the Training Area by Camp Parks personnel and other surveyors (Booz Allen 2004a) over the past four years. The Training Area provides foraging and potential nesting habitat for northern harriers.

3.6.2.3.6 White-tailed Kite

The white-tailed kite is a medium-sized hawk, approximately 14.5 inches long. It has long, pointed wings and a long, squared-off tail. Adults have white heads, tails, and underparts with black shoulders and black patches on the undersurface of the wing. White-tailed kites hunt by hovering over a field or marsh and stoop on prey with their wings held up. Their diet mostly consists of voles and mice, but they also hunt birds, snakes, lizards, frogs, and large insects. The white-tailed kite is sometimes referred to as the black-shouldered kite. It is a USFWS Sacramento Fish and Wildlife Office species of

concern and has been a fully protected species in California since 1957 (Waian and Stendell 1970).

The white-tailed kite is a resident from southwestern Washington to northwestern Baja California, from Florida and southern Texas to South America. In California, white-tailed kites are most abundant in the Central Valley (NatureServe 2005). White-tailed kites require open grassland habitat for foraging and riparian habitat for breeding. This species usually nests in tall trees that are near water and camouflaged from below but open above. They generally lay four to five white eggs that are heavily spotted with brown. Their diet consists of small rodents, birds, snakes, lizards, frogs, and large insects.

White-tailed kites have been commonly observed at Camp Parks, primarily foraging in the Training Area. White-tailed kite nesting was documented at a location along the northern edge of the Cantonment Area and southeast of 12th Street (Booz Allen 2004a). The entire Training Area is potential foraging habitat for white-tailed kites and trees associated with scattered ponds and wetlands provide nesting habitat.

3.6.2.3.7 Prairie Falcon

The prairie falcon is a medium-sized raptor that is sandy brown above and whitish or pale buff below with fine spots and streaks. It has a narrow brown stripe on both sides of its beak and dark wing linings. The prairie falcon is a CDFG species of special concern and USFWS bird of conservation concern in California.

The prairie falcon is found in western North America from Canada through Mexico. The total population within California is very small and vulnerable (CDFG 2005a). The major threat to prairie falcon populations in California is pesticide uptake via consuming poisoned rodents, as well as egg collecting. Prairie falcons use a range of habitats from annual grasslands to alpine meadows, but are associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Their prey base consists of small mammals, birds, and reptiles. The prairie falcon usually nests in a scrape on a sheltered ledge of a cliff overlooking a large, open area, or in abandoned raven or eagle nests.

Prairie falcons have been observed at Camp Parks (JSA 1995, Booz Allen 2004a). The Training Area provides foraging habitat; however nesting habitat is lacking at Camp Parks.

3.6.2.3.8 Western Burrowing Owl

The western burrowing owl is a small ground-dwelling bird that measures 9 to 11 inches in height, with a brown dorsal (back) surface and a white throat and under tail coverts. The western burrowing owl is considered a USFWS bird of conservation concern in California, a USFWS Sacramento Fish and Wildlife Office species of concern, and in April 2003, was petitioned for listing as endangered or threatened in California

(Petitioners 2003). This petition was denied in December 2003 (CFGC 2004); that decision was challenged in 2004 (CBD 2004).

The distribution of the burrowing owl includes western North America from Canada to Mexico and east to the Mississippi Valley. Year-round populations mainly occur in California, ranging throughout the Central Valley from Marin County south to the Mexican border and in the northeastern and southeastern portions of the state where they occupy sparsely inhabited desert areas. Breeding burrowing owls have been extirpated from approximately eight percent of their former range in California during the last 10 to 15 years. A comprehensive statewide survey conducted in the early 1990s revealed that breeding owls were entirely eliminated from five counties and were nearing extirpation in six other counties, none of which include Camp Parks. In addition, small breeding populations of owls have likely been extirpated from Humboldt and Mendocino Counties, southwestern Solano County, and western Contra Costa County. Breeding owls are rapidly disappearing from southern Los Angeles, western San Bernardino, western Riverside, and San Diego Counties (Petitioners 2003).

The burrowing owl is a year-long resident of open, dry grassland and desert habitats and the grass, forb and open shrub stages of piñon-juniper and ponderosa pine habitats. It uses abandoned ground squirrel, badger, or other animal burrows for roosting and nesting cover. It may also use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement for nesting (CBOC 1993), or pipes, culverts, and nest boxes (Polite 2005). The burrowing owl feeds mostly upon insects, small mammals, reptiles, birds, and carrion. It hunts from a perch, hovers, hawks, dives, and hops after prey on the ground.

Burrowing owls are common at Camp Parks. During surveys in 1999, 2000, and 2001 in the Cantonment Area and southern portion of the Training Area, a maximum of 11 breeding pairs were observed during a single survey of approximately 500 acres. The Cantonment and southern Training Area may be preferred because of its mowing regime, numerous ground squirrel burrows, and low topographic relief. Recent surveys of the Cantonment using the California Burrowing Owl Consortium protocol, observed owls in association with 63 burrow locations (Booz Allen 2004a). One of the highest densities of burrowing owls during Cantonment and southern Training Area surveys was between Cromwell and Davis Avenues and north of 5th Street where RCI housing was constructed after the owls were passively relocated (Booz Allen 2005), and the other was on the east side of Davis Avenue in the vicinity of 10th Street. The third high-density area was along Airfield Road, north of and in a bivouac area that is in the southern portion of the Training Area (Booz Allen 2004a). Areas where burrow density has been high in the past are of interest because some studies have found reuse of nest and satellite burrows to be as high as 87 percent (Holmes *et al.* 2003); other studies have found reuse percentages of 55 and 79 (Belthoff and Smith 1997), and reuse of burrows is generally agreed to be common (Hjertaas 1995).

3.6.2.3.9 Loggerhead Shrike

The loggerhead shrike is a stout bird, with a hooked dark bill, a bluish-gray head and back, and white or grayish-white underparts. Loggerhead shrikes have a broad black mask extending above the eye and thinly across the top of the bill, a gray to whitish rump, a black tail with a white tip, and large white patches in the black wings (NatureServe 2005). The loggerhead shrike is a USFWS bird of conservation concern in California, and USFWS Sacramento Fish and Wildlife Office and CDFG species of special concern.

The loggerhead shrike is still widespread and common in some areas, but has been declining throughout North America since at least the 1960s. Both breeding and non-breeding habitat for this shrike is found throughout California (NatureServe 2005). Its highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, piñon-juniper, juniper, desert riparian, and Joshua tree habitats. This species prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. The shrike occurs only rarely in heavily urbanized areas, but it is often found in open cropland (USFWS 2000).

In 2003, the prevalence of loggerhead shrikes at Camp Parks was first noted during the burrowing owl survey (Booz Allen 2004a). During the General Wildlife Survey, large numbers of loggerhead shrikes were documented at Camp Parks. The shrikes were especially associated with trees or man-made perches in the Cantonment Area and with power lines or conductors near the roads in the Training Area. More loggerhead shrikes were observed in the Cantonment Area (17 observations) than in the Training Area (four observations). Due to past sightings and the fact that the shrikes are territorial from year to year, the potential for continued occurrence at Camp Parks is high.

3.6.2.3.10 Tricolored Blackbird

Tricolored blackbird males are glossy black with dark red shoulder patches edged ventrally with white. Females are usually streaked, sooty-brown and lack red shoulder patches. The tricolored blackbird is a USFWS bird of conservation concern in California, and USFWS Sacramento Fish and Wildlife Office and a CDFG species of special concern.

The tricolored blackbird's range is restricted almost entirely to California, primarily in and near the California Central Valley, and rarely in parts of Oregon and Nevada. Tricolored blackbirds require open, accessible water and suitable foraging space with an abundant food supply. Their foraging habitats in all seasons include pastures, dry seasonal pools, agricultural fields, rice fields, feedlots, and dairies. Tricolored blackbirds also forage occasionally in riparian scrub, saltbush scrub, marsh borders, and grassland habitats (JSA 1995).

Tricolored blackbirds are highly sociable, and roost and forage in flocks. Nesting occurs during April–June in dense stands of cattails and tules, where nests are built a few feet above the water. In the absence of the vast marshlands and perennial grasslands that once

characterized the Central Valley and foothills, most tricolored blackbirds now breed and forage in a diversity of upland and agricultural habitats (Beedy and Hamilton 1997). Eighteen of the 409 records for this species in the CNDDB are in either Alameda or Contra Costa County and are dispersed among seven of the 12 USGS quads including or immediately surrounding Camp Parks.

Tricolored blackbirds were observed foraging on the northern edge of Camp Parks in 1994 (JSA 1995). This species was not observed in either the Cantonment Area or Training Area during the General Wildlife Survey or other field surveys conducted in 2003 (Booz Allen 2004a). The area around California red-legged frog Habitat Management Unit 1 provides potential foraging habitat for tricolored blackbirds; however, suitable nesting habitat is lacking because the contours and water regime of the ponds do not support emergent vegetation appropriate for nesting.

3.6.2.4 Mammals

Potential habitat for special-status mammals occur at Camp Parks. Discussed below are the pallid bat because it has been documented within the Camp Parks boundary, and the San Joaquin kit fox because it is federally endangered. The location of the pallid bat observation is shown in Appendix B, Figure 3-13, together with other information on species of interest in the CNDDB (CDFG 2005a).

3.6.2.4.1 Pallid Bat

The pallid bat has a pale cream to light brown back and white belly with wide, pale ears that are not joined. It ranges from 4.2 to 5.1 inches in length. It has large eyes, a square snout, and heavy robust teeth. The pallid bat is a CDFG species of special concern.

The pallid bat is distributed throughout North America from western Canada to central Mexico. It occurs throughout California except the high Sierra Nevada Mountains. The pallid bat is typically associated with grasslands, shrub lands, woodlands, deserts, and forests. Its diet typically includes insects that it catches on foliage or on the ground, rather than in the air. Pallid bats travel 0.3–1.5 miles between their day roosts and foraging areas. Mating occurs between October and February. During the summer months, females and their young roost separately from males, using cracks in rocks during the day and open areas near foliage at night. Population declines have been caused by human disturbances and pesticide applications.

It is likely that pallid bats forage on Camp Parks based on the 1994 collection of acoustic data within the frequency ranges of the pallid bat near Pond D in the Training Area (JSA 1995). The California red-legged frog Habitat Management Units (18 acres) and Tassajara Creek (3.4 acres within the Camp Parks boundary) are potential foraging habitat for the pallid bat. Roosting sites have not been identified on Camp Parks.

3.6.2.4.2 San Joaquin Kit Fox

The San Joaquin kit fox is the smallest fox in North America and has disproportionately large ears, a long body, and a black-tipped tail. Its coloration ranges from light buff (summer) to grayish (winter) along the back and tail; gray, rust, or yellowish along the sides; and white along the belly. The San Joaquin kit fox is a federally endangered (listed on March 11, 1967) and state threatened species.

Prior to 1930, kit foxes inhabited most of the San Joaquin Valley from southern Kern County north to eastern Contra Costa County and eastern Stanislaus County. The species is currently documented from southern Kern County north to Los Baños, Merced County. The estimated potential range of the San Joaquin kit fox includes Alameda and Contra Costa Counties in the vicinity of Camp Parks.

San Joaquin kit fox numbers have been drastically reduced throughout its range in response to loss or fragmentation of its habitat by agriculture, urbanization, and roads. It is also subject to predation by coyotes and golden eagles, competition from introduced red foxes, and secondary poisoning from eating poisoned prey. The status of the San Joaquin kit fox in 1999 was characterized as declining (CDFG 2005a). Recovery options for the kit fox are contained in USFWS's Recovery Plan for Upland Species of the San Joaquin Valley, California, completed in 1998 (Williams *et al.* 1998). The kit fox is described as a keystone species (i.e., a species essential to the health of the natural community), and successful efforts to save habitat for this species also benefit other endangered plant and animal populations.

The San Joaquin kit fox occurs in desert grasslands and shrublands and has adapted to habitats modified by such activities as agriculture, grazing, and mineral exploration. Depending on the extent of agricultural development, distribution is spotty within its documented range and restricted to the remaining native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills. Kit foxes are active year around and are primarily nocturnal. Dens are used for shelter and for raising young. Kit foxes construct their own dens, but they can also enlarge or modify burrows constructed by other animals, such as ground squirrels, badgers, and coyotes. They also den in human-made structures, such as culverts, abandoned pipes, and banks along roadbeds.

The San Joaquin kit fox was not observed at Camp Parks during surveys performed in 1983, 1986, and 1993 (JSA 1993), and it was absent during 1995 surveys for special-status species (Camp Parks 2002-2005). Kit fox surveys were conducted again at Camp Parks (within the Cantonment and Training Areas) in September 2003 and of the Training Area in September 2005. No sightings or evidence suggested presence of the San Joaquin kit fox in the area surveyed at Camp Parks.

Between 1972 and 1992 and in the general vicinity of Camp Parks, there were a number of sightings contained in 34 separate records in the CNDDB. The 54-square-mile polygon drawn by CDFG to encompass these datapoints overlaps approximately the northeastern third of the Training Area (CDFG 2005a). The most recent of these

observations, in August 1992, was about one mile northeast of Camp Parks. In this same year, gray foxes were observed at Camp Parks (Green and Cleckler 2005). Gray foxes were also observed in 2003 during nocturnal surveys for kit foxes in the Training Area, just north of its boundary with the northern Cantonment Area (Booz Allen 2004a). During the 2003 survey and during a 2005 reconnaissance of the Training Area (Green and Cleckler 2005), burrows large enough to be occupied by the kit fox were observed in the Training Area. In 2003, tubes were installed in a chain-link fence between the Training Area and Cantonment Area to enable kit foxes and other wildlife to pass through.

Grassland habitat in the Training Area, coupled with the large prey base across the installation and the ability of the kit fox to survive in urban areas, could provide suitable foraging and denning habitat for the kit fox at Camp Parks. However, Camp Parks is bordered on the west, north, and south by the cities of Dublin, San Ramon, Pleasanton, and Livermore, with high-density housing, commercial buildings, and correctional facilities immediately adjacent to the installation. This, together with the housing developments under construction along the east and northwest boundaries and development of a school along the north property line, result in the only links to open habitat being along Tassajara Road (Green and Cleckler 2005).

3.6.3 Migratory Birds

Migratory birds in North America are an international resource, with numerous species breeding throughout the United States and Canada. In the fall of each year, these birds migrate south to winter in the southern United States, Mexico, and Central and South America. Because of the migratory nature of these species and their interstate and international movements, the United States has international conventions with Canada, Japan, Mexico, and Russia to protect this shared migratory bird resource, even though ultimate management authority lies with the respective federal governments in the countries where the birds are found. The Migratory Bird Treaty Act (16 U.S.C. 703-712), enforced in this country by the USFWS, is the domestic law that affirms or implements the United States' commitment to these conventions and protection of this resource. Under the Migratory Bird Treat Act, it is unlawful to take, kill, or possess migratory birds, their parts, nests, or eggs. To take is defined as to (or to attempt to) intentionally or unintentionally pursue, hunt, shoot, wound, kill, trap, capture, or collect any migratory bird. When taking is necessary, application for federal and state permits must be made through the USFWS and, in California, the California Department of Fish and Game (CFGD). Most bird species are protected by the Migratory Bird Treaty Act, since the individuals of most species move southward from breeding to wintering areas, whether or not a species is resident in all or part of its distribution range.

Migratory game birds such as waterfowl, coots, rails, sandhill cranes, snipe, woodcock, and doves are managed differently than the remaining migratory birds. Management is a cooperative effort of state and federal governments.

The majority of the bird species listed in Appendix A, Table 3-9 and Table 3-10 that are known to or have the potential to occur at the Camp Parks are protected under the Migratory Bird Treaty Act. These species range from raptors to waterfowl to neotropical birds, all of which are provided equal protection under the Act. A number of these species are also considered special-status species. The risk of take is highest at nesting sites. Prominent migratory birds that may nest in the Cantonment include burrowing owl and white-tailed kite; in addition, migratory birds such as swallows and warblers may nest in the Cantonment. Migratory birds are likely more common in the Training Area in the higher quality and more varied habitats available.

3.7 CULTURAL RESOURCES

Cultural resources include expressions of human culture and history in the physical environment, such as prehistoric or historic archaeological sites, buildings, structures, objects, districts or other places including natural features and biota, which are considered to be important to a culture, subculture or community. Cultural resources also include traditional life ways and practices and community values and traditions. Camp Parks is currently finalizing its Integrated Cultural Resource Management Plan (ICRMP) (Parsons 2001), which provides the basis for the majority of this section. Unless otherwise noted, this cultural resource discussion is a compilation of information gathered from the ICRMP and previous surveys conducted at Camp Parks as further discussed in Section 3.7.4. All buildings, structures, and objects built before 2001 at Camp Parks have been inventoried for the quality of significance in American history, architecture, association with significant persons, archaeology, engineering, and culture in accordance with the criteria established in 36 CFR 60.4[13].

Camp Parks consults with the State Historic Preservation Officer (SHPO) and federally recognized Native American groups prior to planned excavations or undertakings under the National Historic Preservation Act. If Native American remains were found on the installation, then consultations would be required under the Native American Graves Protection and Repatriation Act (NAGPRA), and Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*.

The nature and location of cultural resources cannot be disclosed to the public unless the Federal land manager determines that such disclosure would provide further protection, and there is no risk of harm to the site. The legal authority to restrict the dissemination of

[13] *A resource is considered eligible for National Register of Historic Places (NRHP) listing if it is at least 50 years, unless of exceptional historical significance; retains integrity of location, design, setting, materials, workmanship, feeling, and association; and has one of the following characteristics: association with events that have made a significant contribution to the broad patterns of our history; association with the lives of persons significant in our past; embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).*

cultural resource information is provided in Section 304 of the National Historic Preservation Act of 1966 (NHPA), as amended, and Section 9(a) of the Archaeological Resources Protection Act of 1979 (ARPA). To adequately address the existing condition, only the general types of cultural resources present at Camp Parks and a limited description of their nature is discussed in the following sections.

3.7.1 Prehistory

Camp Parks has been an area of overlapping cultural influences during various periods of prehistory. Since the Central California Prehistory Taxonomic System is based on time and not culture, archaeological patterns that characterize a particular time frame are also used to represent the cultural dimension. Under this system, patterns are composed of aspects, which are composed of phases. Appendix A, Table 3-11 represents the chronological framework for central California prehistory.

There is little evidence of PaleoIndian and Lower Archaic cultures in the area that includes Camp Parks. By the Middle Archaic, the area was located between two known archaeological units: the Lower Berkeley pattern found around the San Francisco Bay area and the Windmiller pattern found in the Cosumnes River area of the Sacramento-San Joaquin Delta. By the Upper Archaic period, the Lower Berkley pattern had spread throughout much of central California, including most lands around the Cosumnes River that had been previously characterized by the Windmiller pattern. The Windmiller pattern in the Stockton district blended with the Berkeley pattern traits to produce a distinctive culture, the Meganos aspect, which was present during the Upper Archaic period. The later Augustine pattern merged with the Berkley pattern in the Emergent period and was present in many regions of central California.

3.7.2 Ethnography

The Camp Parks area is poorly understood ethnographically. Some or all of the area has been attributed to a Costanoan/Ohlone-speaking group and the Eastern Miwok (also known as Mewuk). No properties of traditional, religious, or cultural importance are known to be present at Camp Parks.

Prior to 1770, the Native American population was estimated to be about 30,000 in the entire state of California. An estimated 10,000 Costanoans were present in northern California, and approximately 1,700 Miwok were present in the Mount Diablo Region (MDIA n.d.). The Native American inhabitants who occupied the San Ramon/Livermore Valley area at that time were assimilated into the mission system at the beginning of the 19th century.

The Costanoan-speaking people lived in approximately 50 separate and politically autonomous village communities, or tribelets. The Chochenyo-speaking territory of the Costanoan Indians, which is divided among ten tribelets, inhabited the areas east of San Francisco Bay including the Livermore Valley and Mission San Jose. Information on the ten Chochenyo-speaking tribelets is sparse. The Camp Parks area was most likely within the boundaries of the Costanoan tribelet of Ssouyen at the time of Spanish occupation of

California. The identity of the Ssouyen tribelet was lost and many descendants of Costanoan people now belong to the Ohlone Indian Tribe.

Eastern Miwok are divided among five cultural and linguistic groups, which are further divided into tribelets. The Bay Miwok, or Saclan, occupied an area of eastern Contra Costa County from Walnut Creek to the Sacramento-San Joaquin Delta, including the Mount Diablo area. The Plains Miwok occupied the drainages of the Cosumnes and Mokelumne Rivers, in Sacramento, Amador, and San Joaquin Counties. The Northern Sierra, Central Sierra, and Southern Sierra Miwok groups occupy the foothills and mountains from the Consumnes to the Fresno River. Modern Federally acknowledged California Miwok entities reside on small rancherias, which are reservations ranging in size from 2 to 300 acres.

The following groups identified in the ICRMP are included in NHPA consultations: the Ione Band of Miwok Indians, Jackson Rancheria of Me-Wuk Indians of California, the California Valley Miwok Tribe (formerly known as the Sheep Ranch Rancheria of Me-Wuk Indians of California), and the Tuolumne Band of Me-Wuk Indians of the Tuolumne Rancheria of California.

3.7.3 History

Missionization and European contact contributed to the depletion of the Costanoan population and brought about rapid cultural change. By the early 1800s, the area near Camp Parks was virtually abandoned and the settlement nearest to Camp Parks during this mission period was Rancho del Valle, an outpost of Mission San Jose. Rancho del Valle was located in the Tassajara Valley near present-day Pleasanton.

Following secularization of the missions in the 1830s, land grants through the Mexican government enabled settlement in the area. Between 1834 and 1846, the Mexican government issued over 600 land grants in Alta, California. In 1834, Don Jose Amador acquired over 16,000 acres in the vicinity of present day Camp Parks from the Mexican government and named it Rancho San Ramon. By 1852, Amador began selling his property to various American immigrants, including a 10,000-acre tract of land in the area that currently encompasses Camp Parks. The American immigrants, most notably James Witt Dougherty and Michael Murray, initially used the land for ranching and later began development in the area now known as the City of Dublin. In the 1870s, land use in Alameda County, as well as the rest of California, shifted from the Spanish/Mexican grazing to an American-influenced agricultural base. Agricultural and ranching activities continued on the lands in the Camp Parks area, which were eventually parceled off to private parties.

The U.S. Navy acquired a portion of the former Dougherty Ranch in 1942 for construction of the western home of the Naval Construction Battalion Replacement Depot and a training area for Navy “Seabee” personnel. Over 225,000 Seabees were trained at what was then called Camp Parks during World War II. The land acquisition for Camp Parks encompassed a larger area (3,900 acres) than the current installation (2,478 acres) and relocated as many as 35 to 58 families. Camp Shoemaker, which

housed a Naval Hospital and Naval Training and Personnel Distribution Center, was located east of present day Parks boundaries. Camp Parks and Camp Shoemaker were collectively known as "Fleet City."

Camps Parks and Camp Shoemaker were decommissioned shortly after the war and many of the buildings were removed or demolished. In 1946, the Navy leased the land to Alameda County, which constructed a prison (the Santa Rita Rehabilitation Center) on part of the land. In 1951, the Navy regained control of all but the 900 acres used by the jail and transferred the remaining property to the U.S. Air Force.

The U.S. Air Force renamed the facility Parks Air Force Base and rebuilt the dismantled camp for use as a training facility. After the Korean War, the base continued its operation as a basic training facility until its deactivation in 1958 and subsequent sale to the Army in 1959. The U.S. Army operated Camp Parks from 1959 to 1980. The Army identified the camp as an excess facility in 1964 and was directed to dispose of much of the property, but to retain control of 1,600 acres for the National Guard and the Navy. At the time, the Navy was conducting radiation experiments on the installation, which continued under the auspices of the Defense Civil Preparedness Agency (DCPA). Portions of the land were also leased as pastureland to local ranchers, who occasionally provided land maintenance services as compensation for the leases instead of money (Anonymous 1963). Camp Parks remained uninvolved in the Vietnam conflict and several nonmilitary uses were considered for the installation, including use as a site for a high-energy proton accelerator by the Atomic Energy Commission and as a Job Corps Center. In 1973, the Army reevaluated requirements for Camp Parks, and by 1979 several branches of the military had begun to use Parks for training and several other federal activities.

In 1980, the Army designated Camp Parks as a semiactive installation and renamed the facility Camp Parks. The facility was activated to accommodate Army Reserve components' need for a mobilization and training center. The Army transferred the Camp Shoemaker portion of the post to Alameda County, which sold the parcel for the construction of a shopping mall shortly after the transfer. The remainder of the installation continues to be used as a training facility for the Army Reserve; National Guard; active Army; active and reserve units of the Air Force, Navy, and Marine Corps; and other federal, state, and local agencies.

Between the original acquisition of 3,900 acres and the current holding of 2,478 acres, numerous land acquisitions and disposals occurred within the military and between the military and various other entities, including Alameda County, the City of Dublin, the City of Pleasanton, the Department of Justice, Immigration and Naturalization Service, East Bay Regional Park District, U.S. Department of Justice, and Bureau of Prisons. Parcels have also been designated as perpetual utility easements.

3.7.4 Significance of Cultural Resources

Camp Parks began to inventory historic properties in 1981. Currently, all buildings, structures, and objects built before 2001 have been inventoried for the quality of significance in American history, architecture, association with significant persons, archaeology, engineering, and culture in accordance with the criteria established in 36 CFR 60.4. This includes buildings on both DoD and NASA property. There are two historic properties at Camp Parks eligible for the National Register: the Camp Parks front gate sign, designed by architect Bruce Goff in 1944, and a historic-era archaeological property in the Training Area (ASC 2005).

The archaeological sites originally surveyed in 1981 were revisited in 1998. These sites, identified by Archaeological Resource Service in 1981 included 31 separate cultural resources, 28 of which had prehistoric components. In 1998, Jones & Stokes revisited 22 previously recorded archaeological sites and concluded that only seven sites required further investigation to determine if they were NRHP eligible. Further review of these seven sites by Sonoma State University's Anthropological Studies Center in 2001 determined that only four historic-era archaeological sites were potentially eligible. Anthropological Studies Center evaluated the eligibility of the four historic-era archaeological sites in 2005 (ASC 2005) and concluded that only one is eligible for the NRHP. The SHPO concurred with the findings. This property contains historic plantings and scattered refuse, including possible concrete slab foundation remains. The other historic-era archaeological properties were a historic-period dam and reservoir, prehistoric food processing and quarrying sites, building foundations and refuse, and isolated finds that were reevaluated and found ineligible for the National Register. More data on these properties are available in the files at Camp Parks. Sonoma State University's Anthropological Studies Center has also conducted additional studies documenting ethnography and cultural resources at the installation and they maintain Camp Parks' historic properties collection under a cooperative agreement.

The only NRHP eligible historic structure at Camp Parks is the Camp Parks front gate sign, designed by architect Bruce Goff in 1944. Historic structures were surveyed in 1986, 1998, 2001, and 2002. In 1986, Environmental Earth Science Associates evaluated nine buildings that predated Camp Parks and determined that none were eligible for NRHP listing. The SHPO concurred with these findings. Jones and Stokes Associates determined that 33 buildings evaluated in 1998 were not eligible, but the main entrance sign appeared to meet the criteria for NRHP listing. The SHPO concurred with these findings. The Army holds a Programmatic Agreement governing World War II temporary buildings that allows them to demolish World War II temporary buildings without further consultation with the Advisory Council on Historic Preservation. However, the Programmatic Agreement does not conclude that World War II temporary buildings are ineligible for the NRHP nor does it cover undertakings other than demolition. Therefore, Camp Parks wrote to the SHPO in April 2003 (re: Buildings 130, 140, 150, 162, 170, 200, and 521) and in May 2003 (re: Buildings 1105, 1106, 1110, 1111, 1112, 1113, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1130, 1131, 1132, 1134, 1137, 1138, 1139, and 1140) to clarify that these buildings were not eligible for the

NRHP. No response to the contrary was received from the SHPO. Building 1160 was evaluated by JRP Historical Consulting Services in 2001 and determined not to be eligible. The USACE conducted a survey of previously unevaluated World War II and Cold War-Era buildings in March 2002 and determined that neither the 168 buildings and structures inventoried in the report nor the post as a whole qualify for listing in the NRHP (USACE 2002b). Building 121 was determined by NASA not to be eligible for the NRHP and received SHPO concurrence with its determination on 21 December, 2006 (NASA061127A).

At Camp Parks, consultation with the SHPO is conducted on a site-by-site basis for each project that might disturb potential cultural resources. In accordance with regulations and policy, Camp Parks sends the SHPO and federally recognized tribes a notification letter describing the proposed undertaking, the area of potential effect, and anticipated impacts to cultural resources.

3.7.5 Potential for Buried Cultural Resources

A geoarchaeological sensitivity study was recently conducted for Camp Parks (ASC 2004) to identify areas that have the potential to contain buried cultural resources. Human occupation in the area is assumed to have been within the last 12,000 years, referred to as the Holocene. Soil horizons dating to the Holocene are likely to contain buried prehistoric archaeological materials, while soil horizons from the Pleistocene are unlikely to contain prehistoric archaeological material. Based on NRCS soil surveys, a Quaternary geologic map, and topographic information, potentially sensitive areas for buried cultural resources were selected for subsurface exploration based on locations of proposed development.

Areas for subsurface exploration were identified in the Cantonment Area and Training Area. The subsurface exploration identified a layer of artificial fill above the native ground surface that varied from seven inches to nearly seven feet at the test areas. Prehistoric or modern materials in the layer of artificial fill have been highly disturbed by activity and material damaged or removed from its context typically offers little archaeological value. Beneath this fill, soil and sediment samples were collected from the native ground surfaces for radiocarbon dating. Based on the sampling and analysis, the study delineated seven archaeologically sensitive areas (ASAs) that ranged between very low, low, moderate, and high sensitivities. Very low sensitivity ASAs date to the Pleistocene age and are not anticipated to contain buried cultural resources. The low, moderate, and high sensitivity ASAs include areas that contain depositional landforms that have either been confirmed or are assumed to date to the Holocene age.

The largest potential for contact with buried cultural material is at the original surfaces underlying the layer of artificial fill, which varies in depth across the installation. Contact between the layer of artificial fill and the original ground surface does not present a concern in areas of low sensitivity. Areas of moderate sensitivity include locations that were more attractive to settlement and may contain multiple layers of historic occupation in addition to the original ground surface. Areas of high sensitivity

include locations where buried Holocene surfaces were confirmed and may contain multiple layers of historic occupation in addition to the original ground surface. Most of Camp Parks was identified as having very low, to low or moderate sensitivity; two small areas of high sensitivity are present in the Training Area.

3.8 SOCIOECONOMICS

3.8.1 Regional Setting

Camp Parks lies within Alameda and Contra Costa Counties, which together define the study area for this socioeconomic analysis. Alameda and Contra Costa Counties are within the Oakland Metropolitan Statistical Area (MSA), as defined by the California Employment Development Department. This two-county MSA includes Camp Parks and is identified by the U.S. Bureau of Economic Analysis as possessing extensive economic interactions and linkages (BEA 2004).

The U.S. Census, California Employment Development Department, and California Department of Finance are the primary sources of data used for this analysis. Local government documents, consultants' reports, and interviews with representatives of public and private organizations also contributed to this analysis. Particular attention is focused toward the City of Dublin in Alameda County because the land to be exchanged as Dublin Crossing under the Proposed Action would be under authority of the City of Dublin if privatized. The cities of San Ramon and Pleasanton also receive attention because they are adjacent to the City of Dublin and near Camp Parks. Parts of San Ramon are adjacent to Camp Parks. The northern border of Pleasanton is approximately 0.3 mile south of the current southern boundary of Camp Parks. Appendix B, Figure 3-14 shows the locations and boundaries of the counties and cities discussed in this section.

3.8.2 Employment and the Economy

The economy of the socioeconomic study area is extremely diverse. The total number of jobs in the Oakland MSA was estimated to be 1,027,092 in 2004. Over the 14 years between 1991 and 2004, job numbers displayed an upward trend until the last three years (2001 to 2004), during which there were small declines. The unemployment rate in the Oakland MSA has shown regular increases from 2000 to a high of 6.1 percent in 2003, followed by a decrease in 2004 to 5.4 percent. The unemployment rate for this area was below the estimated unemployment rate of 6.1 percent for California in 2004. The unemployment rate was 5.7 percent in Alameda County and 4.9 percent in Contra Costa County in 2004.

The largest employment sectors are services, government, retail trade, and manufacturing (Appendix A, Table 3-12). Service accounts for 37.2 percent of jobs (382,200 jobs) in the MSA, government accounts for 17.4 percent (178,708 jobs), and retail trade accounts for 10.6 percent (108,675 jobs). Manufacturing accounts for 9.4 percent (96,408 jobs) of the total jobs in the MSA and is closely tied to the services and retail trade sectors.

The agriculture and government sectors, as well as the finance, insurance, and real estate sector (FIRE), experienced increases in employment from 2000 to 2002. Only FIRE continued to experience increases in employment from 2002 to 2004. Over the fifteen years 1990-2004, services and construction experienced the largest increases in employment in the Oakland MSA.

Services, wholesale trade, construction, and FIRE experienced the largest increases in total income from 1990 to 2002 in nominal dollars (Appendix A, Table 3-13). The FIRE sector increased the most at about 188 percent over the time span. The service industry's income increase was the next largest at about 153 percent. Other strong income growth occurred in the following sectors: construction (98 percent), wholesale trade (88 percent), manufacturing (74 percent), and retail trade (68 percent). Total income rose more than inflation, thereby increasing the purchasing power of most employees in the area for the period 1990 to 2002.

Per capita income within the socioeconomic study area was on an upward trend between 1990 and 2000 and exceeded the statewide average (Appendix A, Table 3-14).

3.8.3 Population

Total population for 2004 within the socioeconomic study area was 2,501,929, which includes 1,498,020 in Alameda County and 1,003,909 in Contra Costa County (Appendix A, Table 3-15). This two-county area comprised 6.9 percent of the total population of California. The average household size in the study area was estimated to be 2.72 (Census Bureau 2005a). Dublin, San Ramon, and Pleasanton have experienced increases in population (65, 37.7, and 32.8 percent, respectively, over the 1990 to 2004 period) that are considerably greater than the increases in either county or the state as a whole.

According to State of California Department of Finance projections in 2004, jobs and population in Alameda County were more likely to grow at the historic pace of one to two percent per year than the much higher rates recently experienced. The warm climate, beautiful setting, recreational activities, top universities, and career opportunities in the Bay Area region are contributing factors to the population in-migration, which accounts for about one-half of the growth of this region. However, the cost of living in the Bay Area, the changing demographics of the population, and the continued growth in worker productivity may limit this pace. According to the California Department of Finance, the populations of both Alameda and Contra Costa Counties (2,038,482 and 1,543,053 people respectively, in 2030) are anticipated to increase over 530,000 people in 2030 from their 2004 levels.

A total of 2,297 personnel were assigned to Camp Parks in baseline year 2002 (2,276 in 2008). This results in an average daily strength of about 920 people (the Baseline Daily Planning figure in Appendix A, Table 2-1) during the typical annual training season of April/May to August/September. The average daily strength value includes the "training

load" from the Army stationing and installation plan (ASIP) as well as the full-time units/staff. It does not include any family members living on site in family housing.

3.8.4 Housing

Housing characteristics for the socioeconomic study area and the state are provided in Appendix A, Table 3-16 for the years 1990 and 2000. According to the Census, Dublin, San Ramon, and Pleasanton experienced an increase in housing units (41, 30, and 24 percent, respectively) and a decrease in persons per household from 1990 to 2000. Median home values in the two-county study area increased 22 percent from 1990 to 2000 and 36, 33, and 44 percent respectively in Dublin, San Ramon, and Pleasanton. Median home values in 2000 were $291,900 in Alameda County and $253,800 in Contra Costa County, values that were slightly higher than the statewide average. Values in Dublin, San Ramon, and Pleasanton were considerably higher, at $327,300, $421,000, and $428,200, respectively.

According to the State of California Department of Finance, the number of housing units within the socioeconomic study area was 926,345 in 2004 (Appendix A, Table 3-17). This two-county area comprised 7.3 percent of the total housing units in California. Single detached units (58.7 percent) and apartments with five or more units (22.7 percent) made up the majority of housing units. Dublin's housing stock includes 57.0 percent single detached units. The corresponding figures for San Ramon and Pleasanton were 62.7 percent and 65.3 percent, respectively.

At Camp Parks, there were 14 single and multifamily housing units (one of which was unoccupied), 111 unaccompanied personnel housing (UPH) billets, and 952 annual training (AT) barracks billets (Appendix A, Table 3-18). These single and multifamily housing units were replaced and supplemented with RCI housing under an initiative by the RCI Office to improve the quality of the on-post housing and community services currently provided to soldiers and their families. The RCI initiative has provided 114 new houses at Camp Parks, for a net gain of 101 units[14]. The improvement of military family housing at Camp Parks is being pursued under the Military Housing Privatization Initiative (MHPI) legislation enacted by Congress in 1996. The UPH and AT billets would be replaced under the Proposed Action.

3.8.5 Retail, Commercial, and Industrial Enterprise

Given their location by the interchange of two freeways, I–580 and I–680, Dublin and Pleasanton are attractive to a range of retail, commercial, and industrial establishments. A market study prepared by Keyser Marston Associates (2004) for the City of Dublin examined these sectors in some detail and provided the following information.

[14] *One of the existing housing units may be refurbished rather than replaced.*

A 1.3 million square-foot regional mall, Stoneridge Mall, is located in Pleasanton, along with additional retail space. Dublin has over 3.65 million square feet of retail space, including shopping centers of up to 439,000 square feet (Hacienda Crossings). Retail sales in Dublin in 2003 totaled over $1.14 billion. In 2005, the city approved a 317,000 square-foot IKEA home furnishing store (scheduled to complete construction in 2008) and a "lifestyle" retail center of 137,000 square feet (City of Dublin 2005a). However, IKEA no longer intends to develop and sold the parcels to Blake Hunt Ventures. Blake Hunt Ventures had plans to extend its "lifestyle" retail center to 305,000 square feet within the 27-acre site. Lifestyle centers are characterized by a mix of upscale brand specialty stores and eating and entertainment establishments. This development is in close proximity to the proposed Dublin Crossing exchange parcel of Camp Parks.

As of the fourth quarter of 2003, Dublin had over 2.6 million square feet of office space; Pleasanton had nearly 11.7 million square feet of office space; and San Ramon had over 9.3 million square feet. Vacancy rates at that time were substantial—9.6 percent in Dublin, 17.1 percent in Pleasanton, and 14.1 percent in San Ramon.

At that time, Dublin had nearly 1.6 million square feet of industrial, warehouse, and research and development space, while Pleasanton had nearly 3.1 million square feet of such space. Vacancy rates were 5.6 percent in Dublin and 5.8 percent in Pleasanton.

3.8.6 Infrastructure and Public Services

The discussion of Camp Parks infrastructure below is based on information in the November 2002 Updated Master Plan (Nakata 2002). The subsequent discussion of public services that support Camp Parks, either from within the installation or from the surrounding communities, is based on information in Camp Parks Environmental Office files (Camp Parks 2002-2005). The discussion of the City of Dublin's public services is based on information from the Dublin Transit Center Draft Environmental Impact Report (Haag 2001) and February 2004 phone interviews with senior members of each respective service.

3.8.6.1 Water Supply

The Dublin San Ramon Services District (DSRSD) is responsible for the operation and maintenance of the water distribution system within Camp Parks. Water is currently delivered by DSRSD to a central meter located near on Camp Parks. The water distribution system for Camp Parks is in immediate need of repair, upgrade, and replacement. A privatization initiative with the DSRSD has been completed; however, laterals and pipes inside the buildings are owned and operated by Camp Parks. While DSRSD is not required under the privatization agreement to relocate, upsize or install any pipelines at Camp Parks for existing or new facilities, DSRSD had plans to replace many of the distribution facilities in the future.

3.8.6.2 Wastewater and Recycled Water

DSRSD is responsible for the operation and maintenance of the wastewater collection system within Camp Parks. The mains and distribution system are owned, operated, and repaired by DSRSD. Laterals and pipes inside the buildings are owned and operated by Camp Parks. The Camp Parks wastewater collection system is in immediate need of repair and much of the installation's collection system will be replaced in the future with a new collection system to be owned and operated by DSRSD. DSRSD is not required under the privatization agreement however to relocate, upsize or install any pipelines at Camp Parks for existing or new facilities. All sanitary waste is collected and passed to a central metering station installed by DSRSD. From this station, the waste is dumped into the City of Dublin's sanitary sewer system and flows through a regional connection to a regional treatment plant. Camp Parks was using 120,230 gallons per day (gpd) of the 300,000 gpd owned sewer capacity based on the average monthly flows from January to May of 2007. Any increase in excess of the 300,000 gpd capacity will have to be purchased. Sewer capacity is transferable within Camp Parks in a similar manner as potable water connections.

3.8.6.3 Natural Gas and Electricity

The current natural gas system is owned, operated, and supplied by Pacific Gas & Electric (PG&E). All buildings are metered. Future service connections and improvements to the system would be coordinated and supported by PG&E.

The Camp Parks electrical distribution system is in satisfactory condition. A recent project removed and disposed of all PCB transformers and tested several additional areas where residual PCBs were suspected. No residual PCBs were detected (Section 3.13). Electrical service to Camp Parks is provided by PG&E. For the portion of the base north of 8th Street, a major conversion project recently replaced 12,000-kilovolt (kv) service with 21-kilovolt-ampere (kva) service. The project included new poles, transformers, overhead lines, and upgrading the existing transformer substation on 5th Street. The electrical distribution system on this northern part of the post is owned by Camp Parks, and electricity use is metered at the transformer substation on 5th Street. In the area south of 8th Street, PG&E owns the distribution system, and electricity use is metered at each building. With future expansion and improvement, this system can supply all anticipated demands and new facilities. Long-range development may include privatization of the northern Cantonment Area distribution system and programming underground lines throughout the installation (*pers. comm.* Connor and Lee 2005).

3.8.6.4 Energy Efficiency

Executive Order (EO) 13423 – Strengthening Federal Environmental, Energy, and Transportation Management support energy efficiency, water conservation, and the use of renewable energy products by the federal government, providing specific goals towards these ends. The EO also states that agencies shall ensure that new construction and major renovation of agency buildings comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings set forth in the 2006 Federal

Leadership in High Performance and Sustainable Buildings Memorandum of Understand (MOU), of which the U.S. Army is a signatory. Through the MOU, the DoD has agreed to: reduce the energy cost budget by 30% for new construction and 20% for major renovations; employ strategies to reduce indoor and outdoor water use and reduce stormwater runoff and pollution; use products with recycled content; and use biobased products made from rapidly renewable resources and certified sustainable wood products.

3.8.6.5 Communications

The current communications network switch has a central exchange with lines that are owned and operated by SBC Communications, Inc. All improvements and expansions to the system are coordinated through SBC. Future improvements for the installation would include a single base station and radio sets for the Commander, Fire Chief, Environmental Manager, and Directorate of Public Works (DPW) staff and technicians. Data communications are supported by a fiber-optic cable system installed in 2000 and owned by Camp Parks. The communications systems are critical to maintaining command, control, and communications for increased operations, maintenance, emergency services, and logistical support for the installation and all its tenants and customers.

3.8.6.6 Solid Waste/Refuse Collection

Solid waste collection and disposal services at Camp Parks are provided under contract and are managed and monitored by Camp Parks staff. Most service areas, including the Cantonment Area, Training Area, and tenant facilities at Camp Parks, are managed and monitored specifically by the DPW and Directorate of Logistics (DOL). Solid waste collection and disposal services for family housing areas at Camp Parks are managed and monitored by the USACE under a separate contract. Camp Parks has implemented an ISWMP and Qualified Recycling Program (QRP) to augment, assist, and improve current solid waste management practices. New practices include increased source reduction through the reuse and recycling of materials and through the purchasing of materials with recycled content. Also included is the reporting of all quantities of materials reused, recycled, and disposed, along with the quantities of recycled materials purchased by Camp Parks. Any new solid waste services, regardless of type, are to be conducted in accordance with the ISWMP and QRP and coordinated with the DPW, DOL, Solid Waste Manager, and QRP Manager at Camp Parks.

Hazardous substances also occur on Camp Parks as a result of past and ongoing practices. Lists of hazardous substances and their storage locations are maintained by the Camp Parks Environmental Department and shared with the installation and Alameda County fire departments as necessary. Protocols are in place for the safe management of hazardous substances (e.g. storage locations and shipment of used oil, antifreeze, batteries, florescent lights, and oil water separator pump out).

3.8.6.7 Storm Drainage

The Camp Parks storm drainage system is composed of curb and gutter systems and several independent drainage pipes and channels. These are gravity fed into a major surface channel, which leaves the installation in the southwest corner, draining into the Chabot Canal, then into Alamo Creek, Alameda Creek and, eventually, San Francisco Bay. Most surface runoff drains into open culverts. The remaining runoff, at the western portion of the installation, is diverted into existing 30-inch vitrified clay pipe.

3.8.6.8 Public Schools

Currently, school-aged children of parents assigned to Camp Parks most likely attend schools within the eastern portion of the Dublin USD. All kindergarten through 8th grade schools in the eastern portion of the school district are presently over capacity—particularly the elementary schools, which have been targeted by the district for class-size reductions. The high school for the district is operating at capacity. John Green Elementary School (Kindergarten – 5th grade) opened in August 2007, and an existing school, Fallon, is now for 6th – 8th grades. Students from the population increase at Camp Parks under the Proposed Action would attend these school.

3.8.6.9 Fire Protection

Fire protection services are provided to facilities at Camp Parks by the installation's Fire Protection Division. The installation maintains one new fire station (Station 520) located at Mitchell Drive and 8th Street. The station has a staff of 14, which includes one administrative position. Thirteen members of the staff are trained as emergency medical technicians. Emergency response times range from two to six minutes, depending upon the location of an emergency call. The Alameda County and Contra Costa County Fire Departments hold their annual training for grass fires in the Camp Parks Training Area and thus coordinate closely with the Camp Parks Fire Chief. In addition, Alameda County and Camp Parks Fire Departments have automatic aid agreements, and Alameda County Fire vehicles are permitted to cross Camp Parks to service the portion of their district that is on the other side of Camp Parks (*pers. comm.* Reid 2005).

3.8.6.10 Law Enforcement

Camp Parks has an internal law enforcement division that provides security and law enforcement functions on the installation. In 2005, there were 16 police officers assigned to the division, including seven full-time, permanent, regular officers and nine full-time, permanent access-control police officers who are supported by one secretary. An additional three positions for access-control police officers were authorized, but unfilled. Four law enforcement vehicles with specialized radar speed detection equipment are maintained and operated by the division. This law enforcement group has also been tasked with the enforcement of federal environmental laws, including appropriate fish and game regulations, but would coordinate with the state if necessary (*pers. comm.* Chen 2005).

3.8.6.11 Medical Services and Health Risks

Medical services, including emergency medical services, are provided to Camp Parks personnel primarily by existing off-post facilities in the local communities. Visiting units training at Camp Parks have limited medical capabilities associated with their units that provide medical support during training periods.

People who work in or attend military training in the Camp Parks Training Area would potentially be exposed to a number of different health risks associated with this geographic area. These risks could include wildlife, such as rattlesnakes and venomous spiders, and pathogens, such as rabies, bubonic plague, hanta virus, and valley fever. Rabies and hanta virus are viral diseases that are commonly transmitted through saliva (rabies and hanta virus) or excretory materials (hanta virus); bubonic plague is caused by a bacterium that is typically transmitted through flea bites; and valley fever is caused by a fungus when inhaled by susceptible people and animals. These diseases are considered rare in the socioeconomic project area, but there is a low probability that they could be encountered during outdoor training activities or during maintenance activities in vacant buildings inhabited by small rodents.

3.8.6.12 City of Dublin Public Services

The Proposed Action includes a land exchange that would move a parcel of land from Camp Parks control (federal regulations) to local regulatory control (City of Dublin codes). Redevelopment of this parcel would be supported by City of Dublin public services; therefore, a brief summary of City of Dublin services is included below.

3.8.6.12.1 Fire Protection, Hazardous Substances, and Emergency Medical Response

The Alameda County Fire Department provides all-risk service to the unincorporated areas of Alameda County and to the City of Dublin. These services include fire suppression, arson investigation, hazardous substance mitigation, paramedic services, urban search and rescue, fire prevention and public education. The City of Dublin elected to have the Alameda County Fire Department provide emergency fire and medical services to its residents through a contractual arrangement (*pers. comm.* Johnson 2005).

The City of Dublin owns the fire stations and equipment that service the City, while contracting with the Alameda County Fire Department for fire protection personnel, emergency medical response services, and response to hazardous substance spills. For fire suppression services, the County provides 30 line personnel who are assigned to the City on three engine companies and one truck company located in Dublin at Fire Stations 16, 17, and 18.

Fire Station 16 is located on Donohue Drive and houses one engine company and a patrol. This station provides initial response to western and downtown Dublin, but can respond to calls through the City if needed. The station is approximately 1.5 miles from the western Camp Parks boundary.

Fire Station 17 is a new station that replaced Station 15 in 2002.[15] The new station is located on land immediately adjacent to the East County Government Center at Madigan Avenue and Broder Boulevard. This location is about 0.5 miles from the eastern Camp Parks boundary. The Station is a 24-hour station with a staff of six, housing both an engine and truck company. (Fire engines contain the water pump and other equipment used to fight fires and a truck contains ladders and other equipment used to access multistory buildings). Fire Station 17 provides emergency medical assistance and hazardous substance cleanup.

Fire Station 18 is located on Fallon Road and houses one engine company and a patrol. This station provides initial response to eastern Dublin, but can respond to calls through the City if needed. The station is approximately 2 miles from the eastern Camp Parks boundary.

The Alameda County fire department coordinates with the Camp Parks Environmental Office regarding the types and storage locations of hazardous substances on the installation. All fire-fighting personnel are cross-trained to provide emergency medical services and hazardous substance cleanup. Equipment necessary to perform these services is carried on Department fire trucks. Firefighters are formally trained as both Emergency Medical Technicians and as Hazardous Materials Technicians. If a hazardous substance spill were too large or complex for the fire department to clean up and/or the materials cannot be identified, a County team specialized in hazardous substances would be dispatched.

Water for fire fighting would be provided by the local water service company, DSRSD, from their Zone 1 reservoirs, which are located throughout the lower elevations of Dublin.

The City of Dublin currently levies a fire protection fee for new development to offset the cost of providing new stations, equipment and personnel. Fees are paid to the City at the time of building permit issuance based on square footage of the building.

3.8.6.12.2 Police

Services such as patrolling, criminal investigation, and crime prevention for the unincorporated portions of Alameda County are provided by the Alameda County Sheriff's Office in the Dublin Civic Center. In addition, the Civic Center station houses an Emergency Operations Center, a short-term holding cell, and training and support facilities (*pers. comm.* Thuman 2005).

[15] *Fire Station 15 remains open as a volunteer fire station only, assisting fire department personnel in post-fire related duties including but not limited to rolling up hoses, carrying debris from fire locations, and/or assisting with fire investigations.*

The City of Dublin Police Department provides police service within Dublin. In addition to traditional police functions of enforcement and investigation, the City of Dublin provides drug education in the schools, traffic enforcement, and special crime prevention programs. The police force numbers over 50 sworn officers and the City maintains an officer-to-population ratio of 1.38 officers per 1,000 residents. The Department's minimum response time is four minutes or less for in-progress emergency calls such as robbery, burglary, felonious assaults or domestic violence, while response time is about 15 minutes for non-emergency calls.

3.8.6.12.3 Schools

As noted above, the Dublin USD provides school services to the area. The Dublin USD had 4,602 students for the 2004–2005 academic year (*pers. comm.* Heironimus 2005). The Dublin USD has planned for growth in the eastern Dublin area by establishing Dougherty Elementary School at Hacienda Drive and Central Parkway, just east of Camp Parks, in 2000 and opening Fallon kindergarten through 8th grade at Kohnen Way in the fall of 2005. In anticipation of future development, the school district is working on land acquisition and construction plans for four additional elementary schools and an expansion plan for Dublin High School over the next six to eight years (*pers. comm.* McNeely 2005).

3.8.6.12.4 Solid Waste

The Livermore-Dublin Waste Disposal contract expired June 30, 2005. Amador Valley Industries has been contracted to hold the solid waste collection franchise for the City of Dublin since July 1, 2005. Solid waste is transported to the Altamont landfill site in eastern Alameda County. The landfill has an estimated remaining capacity of about 25 years (*pers. comm.* Jeffries 2005).

3.8.6.12.5 Water and Wastewater

As noted above, water supply and wastewater service to the area, including the City of Dublin, is provided by the DSRSD, headquartered in Dublin. New development associated with or the result of a Camp Parks land exchange under the Proposed Action would most likely require additional infrastructure from the DSRSD. DSRSD would most likely require payment for new connections and other fees on any new development.

3.8.6.12.6 Utilities

As with the Camp Parks on-site services, electrical power and natural gas are provided to the City of Dublin and the region by PG&E (*pers. comm.* Bascom 2005). SBC California provides local telephone service within Dublin and surrounding communities.

3.8.6.12.7 Parks and Recreation

The City of Dublin Parks Department provides parks and recreation facilities within the City boundaries. The City of Dublin considers parks and recreation an integral part of establishing and maintaining a balanced and healthy living environment for its residents

and has developed a number of parks and recreation centers to achieve this goal. Recreation resources in the area of Camp Parks include Alamo Creek Park, Emerald Glen Park, biking trails, public access walking and hiking trails along Tassajara Creek and South San Ramon Creek (e.g., the Iron Horse Regional Trail), and private facilities for residents of area subdivisions (*pers. comm.* Bascom 2005). These are discussed further in Section 3.11.

3.8.6.12.8 Libraries

The Alameda County Library provides services to participating cities within the County, including Dublin. The library traditionally receives its funding from property taxes. The Dublin branch of the Library system (a new facility located near the Dublin City Hall) serves residents of Dublin and other residents of the County.

3.8.6.12.9 City of Dublin Fiscal Resources

The City of Dublin's budget for FY 2004–2005 was balanced and totaled $92.2 million. The City categorizes its funds into four types (City of Dublin 2005b):

- General Fund–contains unrestricted funds largely from property and sales taxes, which are available for funding a wide variety of programs as determined by City Council
- Special Revenue–contains funds (such as gas taxes) and grants received from other agencies for specific projects
- Capital Projects–contains funds received from developers used to fund new public facilities and improvements needed as a result of the impact of new development
- Internal Service–contains funds designated for the replacement of City equipment, vehicles, building components and fire apparatus, as well as for the funding of retiree health benefits.

The City's General Fund budget for FY 2004–2005 was $44.7 million and was allocated to the following services: public safety–41 percent; community development–17 percent; capital projects–13 percent; culture and leisure services–13 percent; general government–11 percent; streets/other–4 percent; and set aside to reserves–1 percent. The General Fund revenue for FY 2004–2005 was from the following sources: property taxes–31 percent; sales taxes–23 percent; other taxes–14 percent; charges for services–11 percent; capital project reserves–7 percent; licenses & permits–6 percent; fines/transfers/other–4 percent; interest/rentals–3 percent; and agency revenues–1 percent.

The most important changes in General Fund revenues for FY 2004–2005 versus the previous year were anticipated to include: increases in property tax revenues resulting from new development; increased development fees from additional developer-reimbursed work along with increased rates for several categories of impact fees; increased reimbursement revenue from outside entities for projects such as I–580 and Fallon Road Interchange, St. Patrick Way, and Dublin Boulevard Underground Utilities;

increased interest revenues from higher interest rates along with a higher average cash balance; and decreased Vehicle License fees from the elimination of the "backfill" portion of the Vehicle License Fee. These changes were part of the proposed state budget for Fiscal Year 2004–2005 (City of Dublin 2005b).

Overall, the policy framework for new development within the City of Dublin generally places a large responsibility on the developer to provide funds for appropriate public services and infrastructure related to the development, either through impact fees or other means.

3.8.7 Social and Community Relationships

In existence for over 60 years, Camp Parks is an established part of the Dublin community. Nonetheless, because of its focused, military-related mission, Camp Parks activities are noticeably different than other activities in the area. For instance, sounds of gunfire as well as occasional military helicopters and other military-related noises occur. The military activities, however, do not appear to adversely affect the community. According to comments received at scoping meetings for the Master Plan EIS in December of 2003, there seems to be general acceptance of Camp Parks and little interest in what the military does on its own land (Booz Allen 2004b). One factor in this acceptance may be that because the Cantonment Area is flat and is separated from residential areas west of the base by a berm and Dougherty Road, buildings and activities on the base are not seen by many local residents. Goals and objectives identified in the Camp Parks Master Plan include the enhancement of "good neighbor" partnerships and the fostering of information exchange.

Dublin planning mechanisms likewise stress the importance of social concerns, quality of life, and positive relationships between urban development and residents of the City. For example, the East Dublin Specific Plan (EDSP) states that the Land Use Map alone does not govern future development, but must be used in conjunction with plan goals and policies. Appendix 5 of the EDSP provides a summary of goals, policies, and action programs contained throughout the Plan. This summary includes five applicable land use–planning goals that have direct links to the urban planning process and associated quality of life in the area.

The EDSP also provides development and design guidelines necessary to create an attractive, well-ordered pattern of development featuring pedestrian-scaled streets, thoughtfully designed buildings, and carefully integrated community facilities and public open space.

3.8.8 Environmental Justice

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires identifying and addressing any disproportionately high and adverse human health and environmental effects of Federal programs, policies and activities on minority and low-income populations. Relevant census data for the two counties within the socioeconomic study area were collected to

determine whether the populations residing there constitute an "environmental justice population" by meeting either of the following criteria:

- The percentage of population of minority (non-white) or low-income status is at least 10 percentage points higher than for the entire State of California.
- At least one-half of the population is of minority or low-income status.

3.8.8.1 Population by Race

Alameda and Contra Costa Counties are composed of diverse populations—as is the State of California—which had a minority population of 40.5 percent in 2000 (Census Bureau 2000). Minority populations account for an estimated 51.2 percent of Alameda County and 34.5 percent of Contra Costa County. The minority population of Alameda County is higher than that of the state by over 10 percent, indicating a potential environmental justice concern. The Alameda County figure, however, reflects large minority populations in Oakland and other communities on the east side of San Francisco Bay, far from Camp Parks. The percentage of population of minority status is much lower for geographic units around Camp Parks, as shown in Appendix A, Table 3-19. Minority populations account for 30.6 percent of the population in Dublin, 19.6 percent of the population in Pleasanton, and 23.2 percent in San Ramon. The minority populations of seven census tracts that surround Camp Parks range from 19.6 to 30.2 percent (lower than the state figure), except census tract 4501, which has a minority population of 52.3 percent (more than 10 percent over the state figure). Nearly 70 percent of the population of this tract is found in two census blocks that comprise the Santa Rita Rehabilitation Center and Federal Correctional Institution. The minority population of the non-incarcerated population of census tract 4501 is 20.3 percent, similar to that of other nearby tracts and well below the state average. Based on the minority status of census tracts immediately around Camp Parks and the three adjacent or nearby cities, minority status does not raise environmental justice issues for this EIS.

3.8.8.2 Income Status and Population in Poverty

Low-income populations are defined as those below the federal poverty thresholds. The U.S. Census Bureau estimates poverty levels using a set of income thresholds that vary by family size and composition. In 2003, these thresholds were $18,979 for a typical family of four and as high as $40,751 for a household having nine or more occupants but no dependants. If a household's income is below the income threshold, then the family and all the individuals of that household are considered to be in poverty.

Appendix A, Table 3-20 summarizes estimated poverty rates and median household income figures for the socioeconomic study area and the state. Median household income has increased from $31,528 to $58,303 (54 percent) in the two-county socioeconomic study area since 1990 (in 2000 real dollars), resulting in an income that is slightly higher than the statewide average of $46,296. Contra Costa County has a slightly higher median household income than Alameda County, $62,070 versus $54,536, respectively. The three communities that surround Camp Parks are more affluent than

the state or the two counties, with median incomes as follows: Dublin, $75,335; San Ramon, $93,440; and Pleasanton, $88,569.

According to Census data, 7.7 percent of the families in Alameda County, 5.4 percent of the families in Contra Costa County, 1.4 to 1.9 percent of the three neighboring communities, and 0.8 to 2.8 percent of the six census tracts immediately adjacent to Camp Parks were living in poverty in 1999, which are lower percentages than the statewide average of 10.6 percent (Census Bureau 2005a). Therefore, the income status of families living in areas surrounding Camp Parks raises no environmental justice issues.

3.9 LAND USE, TRANSPORTATION AND ACCESS

3.9.1 Land Use

The way land is developed and used for various anthropogenic activities (e.g., residential, commercial, and industrial) affects quality of life and the environment. Off-site and on-site land uses associated with Camp Parks are described in the following sections in terms of their compatibility with adjacent uses, environments, and intensity.

3.9.1.1 Off-site Land Uses

As discussed previously, approximately two-thirds of Camp Parks is within Alameda County and the remainder is in Contra Costa County (Appendix B, Figure 1-1). The Cities of Dublin, Pleasanton, and San Ramon surround Camp Parks; existing land uses associated with these neighboring jurisdictions are briefly summarized below.

West: Dougherty Road forms the western Camp Parks boundary and separates single-family residential developments and commercial developments from the installation. The City of Dublin borders the installation to the west and southwest, and the City of San Ramon abuts the northwest boundary.

North: Unincorporated portions of Contra Costa County border the installation to the north. The properties in these areas were undeveloped open space until recently. Extensive urban development has been occurring on the 2,379 acres of the Windemere Ranch and the 2,708 acres of the Gale Ranch, where 11,000 homes were being constructed.

East: Unincorporated areas of Alameda and Contra Costa Counties border the installation to the east and northeast, respectively. This area had, until recently, been predominantly open space, with a small amount of rural residential development along Tassajara Road. However, Dublin Ranch West (with about 1,000 medium- and low-density single-family homes), Yarra Yarra Ranch (with 200 to 300 mixed-density homes), and Tassajara Meadows (with 150 to 160 single-family detached homes on small lots) are new developments that stretch along the west side of Tassajara Road to the south of the Contra Costa-Alameda County line. The East Bay Regional Park District owns and manages the 27.4 acre Tassajara Creek Regional Park which is adjacent to northeast corner of the Training Area. The park contains vehicle parking, picnic tables, and hiking

trails. Areas to the east and southeast of the installation are within the City of Dublin. Existing land uses in these areas include the FCI (a U.S. Department of Justice low-security prison), Alameda County's new Santa Rita Rehabilitation Center, a large multistoried office building owned by Sybase Inc., the abandoned Santa Rita Rehabilitation Center, and the abandoned Naval Hospital. The abandoned facilities are owned by Alameda County and are to be demolished.

South: Dublin Boulevard and the City of Dublin border Camp Parks to the south. The East Dublin/Pleasanton BART Station is located immediately to the south of Camp Parks across Dublin Boulevard. South of Dublin Boulevard and directly adjacent to the BART Station, the Dublin Transit Center is being developed to create a high-density mixed-use, transit and pedestrian-oriented development. This Center is proposed to have a maximum of 1,500 to 1,800 high-density residential dwelling units. Existing development is currently dominated by commercial and industrial uses. Located across from I–580, within the City of Pleasanton, Hacienda Business Park is the largest commercial development project in the vicinity of Camp Parks.

3.9.1.2 Regional Land Use Planning Plans and Policies

Various land use-planning policies that could affect Camp Parks have been prepared by local jurisdictions surrounding Camp Parks and designate land uses for areas adjacent to and in the vicinity of the installation. Information on these policies is summarized below from information provided by data in the files of the Camp Parks Environmental Office (Camp Parks 2002-2005), the November 2002 Updated Master Plan, and the May 2004 Master Plan Supplements (Nakata 2002), unless otherwise cited.

3.9.1.2.1 Contra Costa County General Plan and Dougherty Valley Specific Plan

The stated purpose of the Contra Costa County General Plan is to "express the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development and conservation of resources through the year 2020" (Contra Costa County 2005). The Contra Costa County General Plan land use designations for the portion of Camp Parks within Contra Costa County and for land bordering the installation to the north have been superseded by the Dougherty Valley Specific Plan, as amended (DVSP) (Contra Costa County 1992a), and the subsequent Agreement to Settle Litigation Relating to Dougherty Valley General Plan Amendment, Specific Plan, and Environmental Impact Report (Settlement Agreement cited in City of San Ramon 1995).

Consistent with the Contra Costa County General Plan, the DVSP and the Settlement Agreement designate "single-family medium-density residential" and "mixed-use" land uses in the area immediately adjacent to Camp Parks' northern boundary. The Settlement Agreement provides that the City of San Ramon shall annex this area after final maps and tax-sharing agreements are approved. The land use diagram designates the area immediately west of the installation for "single-family medium-density residential" dwellings. There is only one area, northeast of Camp Parks, that is not designated for development because it is outside the San Ramon 2020 urban growth boundary.

The DVSP identifies future land use designations for Camp Parks. Areas of the installation within the specific plan area are designated as "open space" and "public/semipublic" on the land use diagram.

3.9.1.2.2 Alameda County East County Area Plan

The portions of Camp Parks and surrounding areas south of the Contra Costa-Alameda County line are covered by Alameda County's East County Area Plan. The purpose of the East County Area Plan is "to present a clear statement of the County's intent concerning future development and resource conservation within the East County to the year 2010" (Alameda County 1994 [amended 1996]). Land use designations shown on the East County Area Plan Land Use Diagram are generally consistent with designations in the City of Dublin General Plan, City of Pleasanton General Plan, and East Dublin Specific Plan (Appendix B, Figure 3-15). Areas to the east of Camp Parks are designated as major public, major commercial, very high-density residential, high-density residential, industrial, medium high-density residential, major park, and low-density residential. Areas to the south of the installation are designated as mixed use and industrial. Areas to the west of the installation are designated as medium-density residential and major commercial. Areas within the installation are designated as major public.

3.9.1.2.3 City of San Ramon General Plan

The City of San Ramon's General Plan describes "the City's desired pattern of preservation and community development for the next 15 years" (City of San Ramon 1995). San Ramon is located northwest of Camp Parks, which is designated in the City's general plan as residential low density and residential medium density, consistent with existing land uses (Appendix B, Figure 3-15).

The area to the north of Camp Parks is within the San Ramon 2020 urban growth boundary and is covered by Contra Costa County's DVSP (discussed above). In anticipation of this area's annexation to San Ramon, land-use designations consistent with the DVSP have been identified in the City's general plan.

3.9.1.2.4 City of Dublin General Plan

The City of Dublin has adopted the City of Dublin General Plan (adopted 1985, revised 1992) and the Eastern Dublin General Plan Amendment (January 7, 1994), plus the East Dublin Specific Plan (January 7, 1994), which collectively cover areas southwest, south, and southeast of Camp Parks (Appendix B, Figure 3-15). These planning initiatives are germane to the future of Camp Parks, as the adjacent land-use densities, land-use patterns, traffic mitigation measures, and traffic design standards promoted by these documents will affect future land uses within and around Camp Parks, especially in locations adjacent to the Cantonment Area. In particular, the EDSP has an important and dynamic influence on the installation and could have immediate ramifications upon the mission readiness and infrastructure investments proposed within the Master Plan.

The EDSP land-use designations provide potential developmental concepts for each land-use type. For example, the EDSP establishes residential densities in terms of dwelling units per acre and office land-use designations that could occur within Dublin Crossing, proposed in the southern Cantonment Area. The EDSP also has established a multiplier to estimate the amount of employment that could be generated by new development in eastern Dublin.

3.9.1.2.5 City of Pleasanton General Plan

The City of Pleasanton General Plan "is the official document used by the City decision-makers and citizens to guide the long-range development of land, and the conservation of resources, in Pleasanton" (City of Pleasanton 1996). The area within the City of Pleasanton, which is directly south of Camp Parks and across I–580, is designated as business park, consistent with the existing land use. The general plan contains a policy and program to establish a well-planned mixture of land uses around the East Dublin/Pleasanton BART Station, immediately to the south of Camp Parks. It also provides flexibility for the Hacienda Business Park to transfer its remaining 12 acres with high-density residential development potential to the Dublin Transit Center development adjacent to the BART station.

3.9.1.3 Camp Parks Land Uses

Existing Camp Parks land uses are described in the Camp Parks Master Plan and other documents, as discussed below. Camp Parks occupies 2,478 total acres, which is divided into two comprehensive districts: the Training Area in the northern undeveloped portion of the installation and the Cantonment Area that occupies the southern developed portion of the installation (Appendix B, Figure 1-2). The 1,991-acre Training Area is characterized by extensive undeveloped land, which is used for small arms training, fixed range firing, and outdoor bivouac areas associated with field training. The 487-acre Cantonment Area has been developed for administrative, logistical, and other support of the installation; however, many facilities have since been demolished. The Cantonment Area land uses accommodate facilities for the Camp Parks garrison and all of the tenants supported by the installation. Further description of the land uses in the Cantonment Area and Training Area is provided in the following sections.

3.9.1.3.1 Cantonment Area Land Uses

The Cantonment Area land-use pattern is characterized by underdevelopment and a lack of definition (Appendix B, Figure 3-16). This situation has arisen from historic reductions in mission-related tasking and the subsequent demolition of surplus and inadequate facilities, mostly World War II vintage temporary structures. Many of these structures had reached the end of their economic life span and were demolished to reduce costs. The remaining structures are, for the most part, Korean War era temporary structures that have a limited remaining life span and limited ability to support the installation mission. Five recently constructed permanent structures within the Cantonment Area (Buildings 00370, 00510, 00610, P020, and P030), as well as RCI Housing, form the anchors of the proposed land use plan and the land use categories

anchored by these facilities would allow clear definition of the future land use pattern at Camp Parks (Appendix B, Figure 1-4). The general land uses shown in Appendix B, Figure 3-16 are discussed below. Further information on the organizations and facilities associated with these land-uses is provided in Section 1.1.

Unaccompanied Personnel Housing (UPH): UPH billets are required to house the full-time, permanent, unaccompanied soldiers and officers assigned to the installation. UPH billets have been provided in Buildings 1151 and 1152, north of 12th Street and adjacent to the newly renovated Guest House (Building 1150).

Annual Training (AT) Billets: AT billets are required to house the soldiers that participate in annual and other training events. This land use is for the temporary billet requirement associated with the reserve component schools operated at Camp Parks. AT billets are currently provided in specific block facilities, which are: Buildings 300–306 (but not including Building 305) between 8th and 9th Streets; Buildings 360–364 on the south side of 10th Street; and Buildings 390–394 on the north side of 10th Street (Appendix B, Figure 1-4). While some of these facilities have been renovated, they are not considered adequate facilities for the long-range needs of the installation. The AT billets are appropriately situated near the classroom facilities used most by the soldiers.

Family Housing: Family housing at Camp Parks is only authorized for full-time, permanent soldiers who are stationed at Camp Parks in an accompanied status. The old family housing, located to the north of 12th Street in the northernmost portions of the Cantonment Area, did not support the existing requirements for accompanied personnel and their families, and would not support the projected requirements. The RCI program, which encourages private sector investment in construction and long-term improvement of military housing, has constructed 113 family housing units and refurbished the commander's quarters, as discussed in Section 1.3. This new housing, between 5th and 8th Streets and between Adams and Davis Avenues, is near guest house and permanent party billeting, the dining hall, and the chapel.

Installation Support: The installation-support land use encompasses all the administrative and community support activities necessary to keep Camp Parks functional and capable of supporting the assigned tenant organizations. It specifically does not include the unit-level or organizational facilities associated with tenant administrative or operational missions. This land use is dispersed throughout the Cantonment Area. All of the facilities in this land-use category are past their useful life and must be replaced.

The Camp Parks garrison is the most significant administrative activity located at the installation. The headquarters (HQ) is located within Building 790 on 5th Street. Camp Parks does not presently support any tenants that primarily require administrative facilities. Most of the office space at the installation is in direct and indirect support of training activities.

Camp Parks does not include many community support facilities because it has a relatively low permanent population, as is characteristic of CSTC installations. The community support facilities presently on post are dispersed throughout the northern Cantonment Area. Each site supports individual or specialized functions, without taking advantage of consolidation or considering service populations and locational factors. The existing community facilities also do not support all the needed functions of the Camp Parks mission or are inadequate to achieve the desired quality of life. Only the dining facility and physical fitness room in Building 332, the Post Exchange, and the consolidated open mess (community club) located in Building 521 have sufficient visibility and scale to serve as community landmarks or district identifiers. However, these facilities are at the end of their respective life spans and are recommended for replacement in the Master Plan for Camp Parks.

Operations and Training: The operations and training land use directly supports tenant training missions, which include the reserve centers, armories, and schoolhouse facilities. The 91st Division, 104th Division, RTS-Medical, and WARISC organizations and others all support academic and applied instruction within or adjacent to their complexes. Three buildings assigned to this land-use category (Buildings 370—Battle Projection Center, 510-91st Training Support Division Headquarters, and 610—WARISC) are relatively new, in a good state of repair, and proposed for retention under the Camp Parks Master Plan (Appendix B, Figure 1-4).

Maintenance and Warehousing: The maintenance and warehousing land use generally encompasses the logistical support activities necessary to keep the installation functional and capable of supporting the assigned tenant organizations, including organizational vehicle maintenance and supply/storage activities. This is the most consolidated land use; however, all of the facilities are past their useful life and must be replaced.

The maintenance activities at Camp Parks are generally located in the southwestern corner of the Cantonment Area, extending from Dublin Boulevard northward to 5th Street. The Directorate of Public Works (DPW), AMSA, and ECS-30 are supported in this land use. DPW is headquartered at Building 791, located south of 5th Avenue just to the west of the Garrison HQ (Building 790). Building 791 supports DPW administration and installation/housing maintenance shop specialties for the various trades. The main facilities that support AMSA and ECS-30 are Buildings 730 and 792. These facilities are located south of the DPW shops, forming the basis of a coherent and well-defined complex (Appendix B, Figure 1-4). All of these activities require major indoor shop/warehousing and open storage space to support their functions. Land use compatibility is a major issue for these industrial activities due to highly visible outdoor work areas, objectionable odors, noise, and extensive laydown and staging areas for supplies, vehicles and parts.

A number of activities at Camp Parks require both warehousing and outdoor open storage space to support their missions. The Directorate of Logistics (DOL) maintains warehousing space for its installation mission support of the billeting, dining, family housing, transportation services, supply, receiving, shipping, consolidated club

operations, weapons storage, purchasing, contracting and information systems management for all of the Camp Parks garrison and on-post organizations. Presently, DOL occupies Buildings 130, 162, 170, 311, and 332 (dining facility). The DOL operation is not consolidated at the present time, although most of the warehousing is located in the main supply/storage compound, southwest of 5th Street and Evans Avenue. Building 170 is also used by the Department of Justice for warehousing bulk materials and supplies in support of the FCI activities located on or adjacent to Camp Parks property. Additionally, Building 121 is owned and occupied by NASA in support of activity associated with the Ames Research Laboratory at March Air Force Base (AFB).

Recreation: Recreation land-use areas are dedicated to recreational activities that serve the entire installation or community as a whole. The quantity and location of outdoor recreation resources at Camp Parks is commensurate with the installation population that must be supported (i.e., the recreational resources are limited in number), but very high in quality. An area located just south of 12th Street supports a ball field and resources for other active recreation. Playing courts are located south of this area. A running track is sited south of 8th Street, as is a soccer field that operates under a joint-use arrangement with the City of Dublin. The outdoor recreational land use is easily accessible to associated land uses, such as training and housing. However, the quantity of outdoor recreational facilities must be increased to support the growth of installation facilities and tenants and the anticipated growth and greater on-site housing of permanent personnel.

Open Space: The open space land use classifies the areas within the Cantonment Area that are typically open, previously disturbed areas. Much of this land use designation identifies the areas where World War II or Korean War–era facilities have been demolished and that have not yet been redeveloped. This land use also functions as a buffer between Camp Parks and the property owners adjacent to the Cantonment Area. Open space along the installation boundaries provides improved security and a buffer from potentially nonconforming land uses that may be present off post.

Much of the open space land use area is readily available for redevelopment under the Master Plan to meet the shortfall of facilities. It has been used for the recent construction of Building 494 (COES Warehouse used as a regional support facility for the 63D RRC), which is north of the current boundary between the Cantonment and Training Areas and in an area that would become part of the future northern Cantonment Area. Open space along the western boundary of the FCI has also been used for the recent construction of Building 520 (Fire Station for the Camp Parks Garrison).

3.9.1.3.2 Training Area Land Uses

The Training Area, the area of the installation north and east of the Cantonment Area, is used for range and training activities. This land use includes firing ranges (small arms only) and field training areas that support individual, small unit tactical, or other land-based activities. The 1,991-acre Training Area receives extensive use year-round for annual training and during weekend drills. Between the small arms ranges and the Cantonment Area land uses, a transition zone provides intensively used outdoor training

and support facilities, such as an obstacle course, a rappel tower, and a leadership reaction course.

The type, impact, and location of training, as well as the number of soldiers involved, are highly variable, and a training can occur anywhere within the complex because a training exercise is based on a unit's Mission Essential Task List (METL). There are specific firing ranges and some designated training sites, but many of the training activities occur throughout the Training Area. Riparian areas are designated as limited access, so the majority of training activity occurs in grassland habitat.

3.9.1.3.2.1 Training Area Use

The intensity and duration of Training Area use varies markedly. Units that train at Camp Parks vary in size from a team (4–5 soldiers), squad (9–12 soldiers), platoon (30–40 soldiers), or company (80–120 soldiers) to a battalion (300–400 soldiers). The average group size ranges from about 20 to 75, although groups of several hundred personnel may occasionally train at Camp Parks. Typically, training exercises last less than two weeks. More elaborate training exercises, which require generators in a bivouac area, occur several times a year. Of these, approximately two to four are large training events that last about two weeks and about ten are medium-sized training events that last two to three days.

Most units using the Training Area come from California. During the first nine months of FY04, units also came from Arizona, Florida, Idaho, Indiana, Massachusetts, Michigan, Texas, Utah, Washington, and Wisconsin. Non-army reservists comprise about 44 percent of the total personnel training at Camp Parks (Appendix A, Table 3-21). Other users of the Training Area are the Air National Guard, Reserve Officer Training Corps (ROTC), Junior ROTC, Navy ROTC, Regular Army, Air Force, Marine Corps, Navy, Navy Reserves, Naval Sea Cadets, and civilians. Appendix A, Table 3-21 provides data on the usage of the Training Area between 1997 and 2003 and shows the number of people and number of man-days[16] for Army Reserve and non-Army reserve users. These numbers increased steadily between FY97 and FY03. Data recorded for the first nine months of FY04 and extrapolated to an entire year[17] indicate that the 2004 figures for Training Area usage will be even greater. Despite the steady increase depicted over time, variation in the use of the Training Area is more likely to reflect the overall level of national military activity, as well as year-to-year ad hoc decisions of units to train at a particular location.

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[16] *The data on number of people reflect the total number of people at PRFTA to train per training event. If a group of the same four people has three training events per year, then 12 people would be recorded. The data on man days reflect the number of people and the length of their stay; thus if the above group stayed five days during each visit, 60 man days would be recorded. The data recorded for FY2000 through FY2003 are more reliable than the data for earlier years, due to increased precision in record keeping.*

[17] *Data for FY2004 were extrapolated by multiplying the data for nine months by 1.34 to approximate the value for the entire fiscal year (e.g., 75 x 4/3 = 100; 4/3=1.34).*

The numerous training vehicles, most of which are larger than the majority of vehicles found on urban roadways, transport troops to their assigned training site. Training vehicles generally remain at the assigned training site until the unit moves back out of the field or return only at the end of an exercise, since the goal of training is to emulate a field situation where supply/support may be infrequent. All training activity is scheduled and coordinated by Range Control; however, data are not kept on the precise number of miles driven in the Training Area or the number or types of vehicles that are engaged in any given training event. Many training events are accompanied by RTS-MED, which trains medical personnel and supports units as they train in the field. RTS-MED estimates that they drive about 1,000 miles a year in the Training Area, using humvees (30 percent), 5-ton trucks (30 percent), forklifts (15 percent), and a retch[18] (15 percent). Other units collectively have about three times the training activity of RTS-MED, which equates to about 3,000 miles a year in the Training Area. Based on these assumptions, an estimated 4,000 miles of driving per year occurs in the Training Area. The types of vehicles used by the other units as they train are humvees (50 percent), 5-ton trucks, 2.5-ton trucks, pickup trucks, and an occasional bus.

3.9.1.3.2.2 Military Use Areas

The Training Area is divided into 11 military use areas, alphabetically labeled A-M (minus H and I) and numerous special activity sites (Appendix B, Figure 1-3). Designated military use areas facilitate troop assignments and separate field training exercises into geographically dispersed areas. Some activities, such as long distance marching or running, may extend across more than one military use area. Training Areas A, B, E, J, K, and M are the most heavily used, as can be seen in Appendix A, Table 3-22. Many areas were used more than 300 times during the first nine months of 2004, which suggests that these areas are used more often than once a day or used by multiple groups at once throughout the year.

3.9.1.3.2.3 Major Types of Training

Activities in the Training Area that fulfill Camp Parks' mission are described below (USACE 2003b). These activities are expected to continue to occur at Camp Parks on a regular or irregular basis with the number of soldiers, amount of training, and probable impacts at Camp Parks fluctuating depending on existing or anticipated DoD mission readiness requirements.

Fixed Range Firing: The Range Complex has fixed-range firing points in Training Area B along the northwestern area of the installation. There are five fixed-firing ranges that were used to practice firing live rounds: M-60 zero range, pistol range, M-16 zero range, M-16 qualifying range, and multipurpose (auto CMBT pistol/M203) range. Units also practiced using simulated hand-grenades at the range. There is no high-explosive

[18] *A giant forklift-like vehicle used to move conex steel storage containers.*

ammunition fired in the range complex. These firing ranges were established in the 1940s and are permanent training structures; however these firing ranges are no longer used. These ranges are being scheduled for closure per the Department of Army, Deputy Chief of Staff memorandum dated 23 March 2009.

Helicopter Training: Helicopter training may be performed in field conditions throughout the Training Area. The infrequent low-level helicopter flights enter and exit from the southern and eastern boundaries of Camp Parks (USACE 2003b). About 20 helicopter flights per year come to Camp Parks on an irregular basis to train and transport personnel. The only existing helipad is in the Cantonment Area. There are no designated landing pads in the Training Area, but there is a tactical landing zone located in Area A. A helicopter pilot may practice landings and takeoffs a number of times during a single training exercise. Helicopter training events typically last one to 14 days. Common exercises include sling loading, evacuation training, and transporting patients for medical purposes.

Other Types of Training: Other common types of training include construction of defensive positions, field supply centers, land navigation, vertical or horizontal facility construction projects, bivouac at non-designated sites, road maintenance and construction, culvert maintenance, vehicle driving, on-foot maneuvers, purification of water, establishment of firebreaks, and fire training. Specific activity sites in the Training Area include: obstacle courses, rappelling towers, common task testing sites, land navigation sites, a vehicle recovery and staging area, maneuver areas, bivouac sites, drop zones, a light demolition range, classrooms, small-weapons firing ranges, a hand grenade practice area, an engineer bridge site, a nuclear/biological chamber, and medical field set-up practice sites. Locations of specific activity sites are provided in (Appendix B, Figure 1-3).

Some of the specific activity sites contain permanent facilities, such as the 35 classrooms, Quonsets, and other buildings; the nuclear/biological chemical building; the five fixed firing ranges; the obstacle course; the leadership reaction course; the rappel tower; the common skills tasks site; and the litter obstacle course that are present in the Training Area. Other specific activity sites are designated locations without permanent facilities. Such sites include a vehicle recovery and staging area, an engineer bridge site, a missile-tracking site, 18 designated bivouac sites, and three multipurpose areas that support bivouac, medical training, and field kitchens. These various areas and their training uses are described below in more detail:

- **Permanent Training Courses and Associated Structures:** The light demolition range, practice hand grenade (subcaliber) course, obstacle course, leadership reaction course, rappel tower site, common skills tasks site, and litter obstacle course are permanent training structures. Army engineering units also build one to three additional structures for these sites within their existing footprint as part of their training each year.

- **Permanent Buildings and Associated Structures:** There are approximately 35 classrooms, Quonsets, and other small storage/range-related structures that have

been built in the Training Area and are used for training exercises. These permanent structures cover about 20,000 square feet. Many of these buildings are in poor condition and will likely need to be replaced over the next few years.

- **Nuclear/Biological Chemical Building**: The nuclear/biological chemical building is used for training soldiers how to respond to a nuclear, biological, or chemical attack. This permanent structure covers about 2,400 square feet.

- **Vehicle Recovery and Staging Area**: The vehicle recovery and staging area is a site where soldiers get their vehicle stuck and then practice getting it out. This site is less than 3 acres in size.

- **Engineer Bridge Site:** At the engineer bridge site, which covers approximately one acre, soldiers practice putting up a bridge.

- **Missile Tracking Site:** At the anti-tank guiding missile tracking site, soldiers set up equipment to practice tracking guided missiles. The site covers approximately 3 acres.

- **Multipurpose Sites:** There are three multipurpose areas that can serve as larger bivouac sites and support medical training and large field kitchen setups. These sites are mowed each year and have shower pads. The shower pads are permanent structures covering about 1,500 square feet each within the sites. The medical sites are 5 to 15 acres in extent. It is anticipated that two new multipurpose sites will be established over the next five years.

- **Designated Bivouac Sites:** There are 18 designated bivouac sites. These sites are mowed each year. Units typically set up tents, equipment, generators, and park their vehicles at the site. These sites are about one acre each in size. It is anticipated that one new designated bivouac site will be developed each year, typically at a location used previously.

- **Non-Designated Bivouac Sites:** Soldiers also establish non-designated bivouac sites, setup equipment necessary for their mission, and establish field supply centers throughout the grassland habitat in the Training Area. Units typically set up tents, equipment pertinent to their mission, generators, and park their vehicles at the site. For example, a signal unit sets up equipment like temporary antennas, generators, and radio-related trucks. Approximately 100 of these sites are established and used per year. Each of these sites is typically smaller than one acre.

- **Road Maintenance/Construction:** There are two basic types of road covering a total of 29 miles on the installation. In the Cantonment Area, roads are typically two-lanes wide and asphalted. In the Training Area, roads are typically 1.5 lanes wide and a mixture of dirt and gravel. There are 15.2 miles of asphalt roads (14 miles in the Cantonment Area and 1.2 miles in Training Area). There are 13.8

miles of dirt/gravel roads (1.3 miles in the Cantonment Area and 12.5 miles in the Training Area).

Asphalt road maintenance includes resurfacing, filling potholes, and painting lines, arrows, and necessary traffic verbiage (i.e. STOP). Approximately 2 miles of asphalt road is resurfaced (including pothole filling) each year. Painting occurs only in the Cantonment Area and everything is repainted on an annual basis. Dirt/gravel road maintenance includes grading, adding gravel, adding erosion control materials, and applying Soil-Sement®. Approximately five miles of these roads are graded and receive additional gravel on a yearly basis during the dry season. Erosion control materials are added along graded areas and include a combination of: hydroseeding with mulch and binder, blankets and mats, fiber rolls and hay bales and silt fencing. Engineering units practice trail building by extending roads or modifying them. Construction/ modification is estimated to cover less than 5 acres each year. Maintenance is estimated to cover less than 5 miles of existing road. It is anticipated that some of the existing firebreaks will be converted to roads for access.

- **Utility Maintenance:** Electricity and water are provided to the range control facilities and to the firing range complexes in the Training Area. These utility lines run into the Training Area along Range Road. Electricity is also provided to the Nuclear Biological Chemical (NBC) chamber along Arnold Road. Ongoing maintenance of these utilities is performed as needed.

- **Culvert Maintenance:** There are approximately 66 culverts on the installation. They vary in size from 1 to 6 feet in diameter and 6 to 30 feet in length. The majority of the culverts are small (1- to 2-foot diameter) and transverse the roads. The culverts are made from corrugated steel, polyvinyl chloride (PVC), or concrete materials. As an average, it is estimated that three culverts are replaced each year on an as needed basis. As part of the replacement process, riprap is added around the ends of the culvert and erosion control materials are applied as needed.

- **Small Engineering Projects:** Soldiers assigned to engineering units must train to certain standards. In order to meet these standards, engineering units must construct vertical or horizontal projects. At Camp Parks, approximately five to 15 small engineering projects are completed each fiscal year by soldiers, in-house personnel, and outside contractors in support of training needs. These projects occur in both the Cantonment and Training Areas. Examples of vertical projects include building an obstacle (such as a net or rope climb) for the confidence course, renovating a building, or setting up a modular structure. Obstacles are constructed within their existing training course footprint (Training Areas A, L, and F). Building renovations and or modular structure setup typically occurs in the Cantonment Area or Training Area B.

  Horizontal projects include building footbridges, building piers, extending existing roads, replacing existing sidewalk, regrading existing roads, installing

water wells, and developing permanent bivouac sites. The horizontal projects can occur in both the Cantonment and Training Areas. Small engineering projects that include the construction/development of a new structure or area do not generally occur within 200 feet of an aquatic or riparian area. Each project typically has a footprint of less than 1 acre; however, there is usually one engineering project each year that is larger in scope (typically 1 to 15 acres in size).

- **Vehicle Driving:** Soldiers practice driving vehicles both on and off the roads. Vehicle off-roading consists of driving with no set route and practicing maneuvers. Range Control reviews and approves off-roading requests. The vehicles used for off roading include: humvees, water tankers, commercial utility vehicles (CUVs), deuce-n-halfs, and 5-ton trucks. Off-roading exercises occur approximately 50 to 100 times per year and can be considered temporary impacts. It is estimated that a single off-roading exercise covers fewer than 10 miles. Most off-roading exercises impact a much smaller area.

- **Defense Positions:** Soldiers may construct 1-man or 2-man defensive positions by digging a trench large enough to fit a person up to his/her chest (approximately 5 feet deep, 2-feet long, and 2 feet wide for one man) throughout grassland habitat in the Training Area. It is estimated that fewer than 5 acres total per year are impacted by digging and associated human traffic.

- **On-Foot Field Maneuvers:** On-foot field maneuvers consist of land navigation, marching, field maneuvers, and opposing force exercises. Land navigation (marked and unmarked) teaches soldiers proper orienteering skills. During land navigation, an individual navigates to several unknown points (which comprise a lane), using a compass and a pace count. Land navigation is conducted on foot. Marching consists of walking as a group along designated roads. Field maneuvers consist of soldiers being given a tactical mission to move on foot through an area, take control of a location, organize, reorganize, etc. Opposing force (OPFOR) consists of soldiers, on foot, trying to hinder or thwart the mission of another unit via counter-attack, separating that unit, or stopping them from completing their mission. Soldiers also fire blanks at temporary targets.

- **Water Purification** Soldiers practice purifying water by removing it from a pond and purifying it through reverse osmosis.

- **Firebreaks:** The Fire Department and Range Control are responsible for maintaining firebreaks. The firebreaks extend between 10 and 20 miles (approximately 30–60 acres) each year. Firebreaks are disked or scraped near the end of the normal growing season, during April and May, using graders or bulldozers. Disked firebreaks are prepared due to the high risk of grassfires during the summer.

- **Fire Training:** Camp Parks hosts the annual Wildland Burn during the summer season (June–July). This three- to four-day event gives volunteer firefighters from the surrounding counties (Alameda, Contra Costa, Napa, Solano, and San Joaquin) the opportunity to practice fighting grassland fires. Riparian habitat is separated from the burn by a minimum of a 200-foot buffer. An estimated 50 to 400 acres are burned each year. Some of the areas not burned during the Wildland Burn may be burned during less extensive fire-training events in the summer season (June–September). An estimated 5 to 60 acres are burned yearly during these latter training events.

3.9.2 Transportation and Access

The quality of a transportation system plays a critical part in connecting people to places, and providing access to economic, educational, recreational and social opportunities. This section describes the transportation network serving the Camp Parks area and identifies current level of service (LOS) on the existing street network. The section concludes with a discussion of alternative transportation modes serving the Camp Parks area.

3.9.2.1 Roadway Network

3.9.2.1.1 Regional Access

Interstate highway access to and from Camp Parks is provided by I–580 and I–680. I–580 is an eight to ten-lane east-west interstate highway just south of Camp Parks that connects I–80 in Oakland to I–5. I–580 provides highway access to numerous cities throughout Alameda County, including Dublin, Pleasanton, Livermore, and Tracy to the east, and Castro Valley, Hayward Road, and Oakland to the west. Highway access from I–580 to Camp Parks is provided via three interchanges, Hopyard Road, Hacienda Drive and Tassajara Drive.

I–680, which runs north-south to the west of Dougherty Road links Alameda and Contra Costa Counties, connecting the Dublin/Pleasanton area to the communities of San Ramon, Danville, Walnut Creek and Concord. For southbound trips on I–680, Camp Parks can be accessed via Alcosta Boulevard, which connects with Village Parkway.

3.9.2.1.2 Local Street Network

Camp Parks, located in the heart of the City of Dublin, is bordered by Dublin Boulevard to the south, Dougherty Road to the west, Arnold Road and Tassajara Road to the east, and unincorporated county land to the north (Appendix B, Figure 3-17).

Currently, entry into Camp Parks is via a single-guarded gate on the south side of the installation. This gate can be accessed via three main arterial roads: Dublin Boulevard, Dougherty Road (Hopyard Road is the southern extension of Dougherty Road), and Hacienda Drive. The main entrance road into Camp Parks is Camp Parks Boulevard, which connects to Dublin Boulevard between Arnold Road and Scarlett Drive. Camp Parks Boulevard is a northern extension of DeMarcus Boulevard, which serves as the

primary access road into the BART Station to the south of Dublin Boulevard. The major roadways in the general vicinity of Camp Parks are described below:

- Dublin Boulevard—Dublin Boulevard is a major six-lane, east-west arterial street located on the south side of Camp Parks. This roadway serves as the city's most heavily used east-west thoroughfare and provides access to the Dublin BART Station, as well as commercial, office, and residential areas in the eastern and western parts of the city. It is also the most convenient east-west connector to I–580 approaches and destinations throughout the City of Pleasanton.

- Dougherty Road—Dougherty is a north-south arterial that borders the western edge of Camp Parks. It has four travel lanes north of Dublin Boulevard and six lanes between Dublin Boulevard and the I–580 interchange. There is a full-access interchange at Dougherty Road and I–580.

- Amador Valley Boulevard—Amador Valley is a two-lane east-west street that connects San Ramon Boulevard (west of I–680) to Dougherty Road, where it currently dead ends. The Master Plan identifies Amador Valley as the new location of the main access gate into Camp Parks.

- Hacienda Drive—Hacienda Drive is a north-south arterial extending from Gleason Drive southward beyond the I–580 interchange in the City of Dublin. Currently, Hacienda Drive has six travel lanes in the vicinity of Camp Parks. This roadway serves as a major north-south thoroughfare linking the Cities of Dublin and Pleasanton, providing access to and from I–580 for traffic originating in retail, office, and residential properties in the area.

- Village Parkway – Village Parkway is a north-south arterial between Dougherty Road and I–680 that connects Dublin Boulevard to Amador Valley Boulevard and Alcosta Boulevard. It is a major feeder road that provides access via Dublin Boulevard from residential subdivisions to retail, commercial, and employment activity centers that are east of Camp Parks. Village Parkway also serves as a major feeder road for travelers headed north on I–680 via the Alcosta Boulevard.

- DeMarcus Boulevard—DeMarcus Boulevard is a north-south, four-lane local street serving primarily as an access to the Dublin BART Station. North of Dublin Boulevard, DeMarcus Boulevard becomes Camp Parks Boulevard, the main access road into Camp Parks. Under the Master Plan, no access into Camp Parks is planned via the Camp Parks Boulevard extension of DeMarcus Boulevard.

- Iron Horse Parkway—Located just east of DeMarcus Boulevard, Iron Horse Parkway is a north-south, four-lane local street also providing access to and from the Dublin BART Station. The BART Park-&-Ride adjacent to Iron Horse is at maximum capacity. The City of Dublin currently allows on-street parking on Iron Horse Parkway to accommodate the spillover parking. Currently, Iron Horse Parkway forms a T-intersection with Dublin Boulevard.

- Arnold Road—Arnold Road is a two-lane local roadway extending north from Dublin Boulevard. The road extends into the Training Area, but access is blocked at the Camp Parks boundary fence. It mainly provides access between Dublin Boulevard and the FCI, as well as to existing office buildings located on the east side of the roadway. Arnold Road will be extended south of Dublin Boulevard to the I–580 frontage as part of the recently approved Commerce One project.

- Scarlett Drive—Scarlett Drive is a local two-lane north-south roadway located toward the west side of Camp Parks, but south of Dublin Boulevard. Forming a T-intersection with Dublin Boulevard, Scarlett Drive extends southward to I–580, where it ends. It provides access to automobile dealerships and various light-industries in the area.

3.9.2.1.3 Key Traffic Study Intersections

A key performance measure of potential traffic impacts associated with a development project is intersection operation. For this analysis, 16 intersections in the vicinity of Camp Parks were selected to establish baseline traffic conditions and estimate potential traffic impacts associated with the Camp Parks Master Plan and the Dublin Crossing development project. The intersections identified in Appendix A, Table 3-23, along with the corresponding traffic control and peak hour LOS, characterize the traffic study area.

Weekday AM and PM peak hour traffic volumes for the traffic study intersections were obtained from a Camp Parks study (TJKM 2003) that summarizes current traffic conditions in the study area. Data on peak hour traffic counts in and out of Camp Parks have also been collected (Gannett Fleming 2004) to determine the external traffic impact of relocating the main access gate to Amador Valley Boulevard and Dougherty Road.

Intersection operating conditions were estimated by measuring the overall roadway capacity occupied by vehicles, or the volume-to-capacity (V/C) ratio. This V/C ratio was assigned a LOS letter grade from A to F, with LOS A representing the free-flow conditions and LOS F representing severely congested conditions. Operating conditions at signalized intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology adopted by the Contra Costs Transportation Authority (CCTA) and the City of Dublin.

Appendix A, Table 3-24 shows the general characteristics of peak hour trips into and out of Camp Parks. In the AM peak hour, 225 trips enter Camp Parks and 55 trips exit Camp Parks via the main gate off Dublin Boulevard. In the PM peak hour, 119 trips enter Camp Parks and 585 trips exit Camp Parks via the main gate. Overall, 61 percent of the traffic to Camp Parks arrives from the west in the AM peak and 66 percent departs to the west in the PM peak. Most of the AM and PM peak hour trips into and out of Camp Parks are oriented to locations that are served by I–580 and I–680, with a relatively small portion being local trips.

The General Plan of the City of Dublin requires that the City make a good faith effort to maintain at least LOS D (i.e., V/C < 0.901) on all arterial segments of, and at the

intersections of, routes of regional significance (General Plan Circulation and Scenic Highways Guiding Policy F). These routes include Dublin Boulevard, Dougherty Road, Tassajara Road and San Ramon Road.

Intersections operating at LOS E and F are candidates for traffic mitigation measures to improve the LOS. If such improvements are not possible, the City may modify the LOS standard assuming other jurisdictions are not physically impacted. As shown in Appendix A, Table 3-23, all of the traffic study intersections operated at LOS C or better.

3.9.2.2 Transportation Trends

None of the intersections in the vicinity of Camp Parks have recurring traffic congestion during the peak periods with the exception of Dublin/Dougherty, which operates at LOS B in the AM peak and LOS C in the PM peak and has been designated by the City of Dublin as a "critical intersection." All other intersections along Dublin Boulevard and Dougherty Road near Camp Parks operate at LOS A, due to the widening of Dublin Boulevard and improved intersection geometrics between Dougherty Road and Hacienda Drive.

3.9.2.3 Access

3.9.2.3.1 Vehicle Access

Current access to Camp Parks via Camp Parks Boulevard (opposite DeMarcus Boulevard) off Dublin Boulevard is controlled by a traffic signal at the intersection of Camp Parks Boulevard/DeMarcus Boulevard with Dublin Boulevard. All vehicles must stop at the security checkpoint in the entrance road and all passengers are required to show their identification and indicate the purpose of their visit.

There is enough storage along Camp Parks Boulevard between the checkpoint and Dublin Boulevard for five passenger vehicles, which mitigates spill back onto Dublin Boulevard. Prior to September 11, 2001, Camp Parks had three other access gates: Dougherty Road at 5th Street, 5th Street at Arnold Road, and 8th Streets at Arnold Road. Motorists typically used the Fifth Street entrances as alternatives to the primary gate at Dublin Boulevard. These access points have closed since the September 11, 2001, terrorist attack. There are no plans underway to reopen secondary entrance points into Camp Parks.

3.9.2.3.2 Parking

Due to the dispersed arrangement of buildings on Camp Parks, there is an abundance of parking in the lots adjacent to each building cluster. Motorists typically park their vehicles in lots located closest to the buildings where their meetings are scheduled.

3.9.2.3.3 Transit Service

BART is the regional rail service in the San Francisco Bay Area, providing service to San Francisco and other parts of the area, with termini at Colma, Fremont, Dublin, Richmond,

and Pittsburg/Bay Point. Currently, BART provides convenient access to Camp Parks via the Dublin/Pleasanton Station, located just south of Dublin Boulevard and across the street from the main Camp Parks entrance. During morning and evening commuting periods, BART runs an approximately 15-minute headway.

The Dublin/Pleasanton BART station has a Park & Ride facility, which has monthly reserved and free parking. By mid-morning on a typical weekday, all parking spaces are filled. Just north of the Dublin BART station, off-street parking is currently available south of Dublin Boulevard on DeMarcus Boulevard and Iron Horse Parkway to accommodate parking spillover.

The Livermore–Amador Valley Transit Authority (Wheels) provides local bus service in the Dublin and Tri-Valley area. Wheels routes that currently serve the vicinity of Camp Parks include 1A, 1B, 3, 4, 10, 10A, 12X, and Altamont Commuter Express (ACE). Most of these bus routes provide service to the Dublin/Pleasanton BART Station, which is within walking distance of Camp Parks. In addition to Wheels, the Central Contra Costa Transit Authority (CCCTA) provides bus service between the northern areas of Contra Costa County and the Dublin/Pleasanton BART Station. Also, the ACE shuttle provides linkage between the Dublin/Pleasanton BART Station and the ACE station in Livermore.

3.10 NOISE

Often, the most widely distributed and perceived impact of operations at a training facility, such as Camp Parks, is noise from the activities occurring on the installation. The Army has quantified the existence and extent of noise from training activities conducted at Camp Parks and has published these data in its Environmental Noise Management Plan (USACHPPM 2000), which was updated in 2005. This document notes that two activities contribute the majority of noise perceived near Camp Parks: small arms training and helicopter noise. Each is quantified using different methods and in different terms. Noise sources are discussed below.

3.10.1 Military Noise

3.10.1.1 Characterization of Camp Parks Noise

An inevitable by-product of realistic combat training is the noise associated with the employment of military systems. In the case of Camp Parks, that noise is concentrated at, but not necessarily confined to, the weapons range. This range, a long-time feature of Camp Parks in its various roles, is as physically isolated from the surrounding communities as is possible. However, rapid growth in the surrounding communities has increased the number of structures and persons exposed to some level of noise from weapons training. However these weapons training ranges have not been used since August 2007. In addition, the key role of the helicopter in the Army's administrative and tactical operations brings that vehicle's unique noise signature and impacts to Camp Parks on an irregular but not infrequent basis.

Military noise at Camp Parks is associated with training activities and with administrative activities at the installation. There are a number of training activities at Camp Parks that are likely to make noise. The following may be used in 24-hour training activities that may use lights and may increase dramatically in intensity as troops train for unpredictable foreign conflicts: blank and live fire of small arms[19], aircraft (helicopter), vehicle traffic (including convoys and test driving of military vehicles), generators, artillery and grenade simulators, PA systems (broadcasting announcements to units), troop movement (dismounted soldiers), OPFOR (simulated combat attacks), and land navigation course.

The noise impact of individual (or multiple) helicopter operations may exceed that of any other activity associated with Camp Parks when it occurs.

In addition to these primary sources of noise, other sources such as cars, trucks, tractors, and lawnmowers, fire-fighting equipment, and generators that are not associated with training activities contribute to noise at Camp Parks. Such sounds are associated with the daily operation of the Cantonment Area.

Noise impacts were addressed in the Master Plan and modeled noise contours associated with small arms range operations were depicted. The association of these noise contours with community population, growth, and development in proximity to Camp Parks was investigated using a geographic information system (GIS).

Individual perception of impulse noise is a function of a number of factors, including the noise's maximum amplitude, rise time and duration, number of events, time of occurrence, and nature of the noise[20] (USACHPPM 2005). The latter factor is especially important in assessing noise (non-impulsive noise such as at airports), where duration of exposure can be considerably longer than for a typical impulse source. In some cases, the short intervals between aircraft, especially in approach or departure, may preclude at least a perceived return to ambient noise levels. To some extent these factors also determine the perception of small arms range noise, although even intensive firing range operations must accommodate some down time.

The Army noise contours associated with small arms training at Camp Parks depict two sets of A-weighted noise values. The first set, near the firing ranges, reflects day-night noise level (DNL) values, which are averages of noise loudness over time. Appendix B, Figure 3-18 shows DNL contours for 65 decibels (dB) and 75 dB (ERM 2005). These reflect increasing A-weighted noise values toward the centermost contour, and determine

[19] *No indirect fire weapons are used at PRFTA (this includes anything larger than a small arms weapon).*

[20] *Three of these factors (loudness or maximum amplitude, rise time and duration, and number of events) are pulled together by the sound equivalent level (Leq), an average of noise amplitude over a specific period of time. The fourth, time of occurrence, is incorporated through the nighttime penalty used in calculation of the day/night noise level (DNL) metric. The fifth, the nature of the noise, is incorporated through the use of different measurement procedures for transportation noise and explosive noise.*

what constraints might be imposed on the development and use of adjacent land. These contours are fully contained not only within Camp Parks, but also completely contained within the Training Area.

A second set of noise contours depicts peak noise values of 87 dPB (peak decibels) and 104 dPB (Appendix B, Figure 3-19a) (ERM 2005). These reflect the principal source of the installation's noise effects and provide the data for which analysis of the surrounding area is conducted. Both the 87 dPB and the 104 dPB contours are contained within the installation perimeter. However, the 87 dPB contour combining noise levels from the Camp Parks firing range and the Alameda County Sheriff's Firing Range extends beyond the installation boundary on the southeast (Appendix B, Figure 3-19b) (ERM 2005).

3.10.1.2 Camp Parks Environmental Noise Management Plan (ENMP)

The Army has recently conducted a comprehensive analysis of noise issues associated with the operation of Camp Parks and of strategies to be pursued in seeking to ameliorate the impact of that noise, which was prepared by USACHPPM in the 2005 Camp Parks Environmental Noise Management Plan (ENMP). This analysis and strategy was originally published in the ENMP in December 2000 (USACHPPM 20000). The 2005 ENMP addresses the overall issue of noise associated with operation of Camp Parks and recommends the adoption of three specific steps to manage community impacts:

- The ENMP provides a Deed Disclosure Statement that obliges the property owner and subsequent purchasers to acknowledge that the Army has (presumably pre-existing) flight operations and route at Camp Parks and that those operations will on occasion overfly and presumably impact private property adjacent to the installation.

- The ENMP provides a Real Estate Disclosure Statement that also obliges property owners, and in this case, presumably obliges real estate professionals, to acknowledge that weapons firing and helicopter operations will both be occurring on and adjacent to Camp Parks and that these activities will be conducted so as to best serve the interests of Camp Parks and its various users and missions.

- The ENMP establishes mandatory noise abatement routes and procedures for military helicopter operations at Camp Parks. These procedures call for all low altitude helicopter traffic to approach and depart Camp Parks via specified locations along the Camp Parks boundary and specifically to avoid overflights of built-up areas at altitudes below 1,000 feet above ground level (AGL).

The latter requirement does potentially impact Camp Parks helicopter operations by requiring additional considerations. Camp Parks is located west of Altamont Pass, a heavily traveled general aviation corridor into and out of the San Francisco Bay Area.

Terrain on the north side of the pass rises rapidly, reaching 1,224 feet, or approximately 800 feet above the installation, within six miles (FAA 2003). This terrain also constrains users of the busy Livermore Municipal Airport, (192,000 annual operations in CY 2003) five miles east of Camp Parks (http://www.ci.livermore.ca.us/ airport/faqs.html)[21]. Therefore, the implementing instructions for the Camp Parks helicopter noise abatement procedures stress cooperation and communications with the Livermore Air Traffic Control Tower. Data collected from the bay Area indicate that the traffic pattern for Livermore's northern runway (runway 25 right, 5,200 feet long) required a right turnout, to the north and into the airspace that would be occupied by helicopters arriving at or departing from Camp Parks, because of simultaneous operations on the Livermore parallel runway 25 left (*pers. comm*. Sundaram 2004).

3.10.2 Other Noise

Camp Parks is a source of noise within its community setting, but is in turn affected by noise that originates outside the installation. In particular, the intersection of I–580 and I–680, about 2.4 miles southwest of Camp Parks, introduces the possibility of transportation noise that may, over the long term, exceed noise generated by the installation itself. The BART station and rail line are located adjacent to I–580, but any noise associated with BART activity is indiscernible from other noises in the vicinity. In addition to traffic noise, the Alameda County Sheriff's firing range is directly adjacent to Camp Parks and has day and night live firing for qualifying activities. Commercial helicopters also use the area, frequently to monitor traffic along Dougherty and Tassajara Road to and from I–580.

3.11 NEARBY SPECIAL MANAGEMENT AREAS

Only one special management area, Tassajara Creek Regional Park, is adjacent to Camp Parks. There are, however, several other parks, wilderness areas, and preserves located in the vicinity of the installation. Due to their proximity to Camp Parks, these areas likely contain similar vegetation communities and wildlife populations (Sections 3.5 and 3.6) and may provide habitat to wildlife species, or even individuals, that occur within Camp Parks. In the past, security fencing has restricted movement of large mammals only in the vicinity of the Cantonment Area, while much of the Training Area was bounded only by a 3-strand barbed-wire fence that did little to restrict large mammal movement. This movement has been largely eliminated by the ongoing development of the Windemere subdivision and the upgraded security fence around most of the Camp Parks perimeter. At selected locations (every 250 ft along the portion of the boundary fence on the north side of Military Training Area K; every 500 ft along the portion of the fence between the Cantonment Area and Military Training Area A), the security fence is penetrated by

[21] *The terrain mentioned above rises to the north reaching 3,899 feet AMSL at Mt. Diablo, approximately 13 miles distant.*

access pipes that are 10-inches in diameter. The access pipes were installed to enable passage of medium-sized mammals that might be in the area.

3.11.1 Regional Parks

3.11.1.1 Tassajara Creek Regional Park

The Tassajara Creek Park and Staging Area consists of a small 27-acre parkland facility and staging for use of the Tassajara Creek Regional Trail. In 1991, the County of Alameda, the United States of America (Army), and East Bay Regional Park District, entered intro a three-party exchange agreement to exchange mutually beneficial properties. The agreement also includes a reversionary clause. In this exchange, the Army at Camp Parks received 445 acres of Tassajara Creek parkland from EBRPD for purposes of a training area, while EBRPD and Alameda County received other properties for their agency's use (*pers. comm.* Perkins 2005).

Tassajara Creek Regional Park, situated adjacent to the eastern boundary of the installation, is the smallest of the special management areas discussed in this section. Due to its small size, public use of the Park is limited, as are its wildlife populations. In addition, a security fence along the Camp Parks boundary restricts the movement of people and wildlife between Camp Parks and Tassajara Creek Regional Park.

3.11.2 Trails

The EBRPD manages 2.5 miles of the multi use paved Iron Horse Trail from the Alameda County line to the Dublin/Pleasanton BART Station, as well as a short segment of the future Shadow Cliffs to Iron Horse Regional Trail along the Alamo Canal in Dublin. Planning is underway for a trail undercrossing of Highway 580 to connect Dublin to Pleasanton via the Shadow Cliffs to Iron Horse Trail and points south. The Iron Horse Trail continues north 23 miles linking the communities of Dublin, San Ramon, Danville, Alamo, Walnut Creek, Pleasant Hill, to its current terminus in Concord providing both a recreation and non-motorized transportation corridor. In the near future, EBRPD will be managing the Tassajara Creek Trail (1.5 miles) from Dublin Blvd. north to the EBRPD Tassajara Creek Park. There are future plans to extend this trail to the north to Morgan Territory Regional Park/Mt. Diablo State Park. In order to provide connectivity between the Iron Horse and Tassajara Creek Trail facilities, the City of Dublin has built 8 foot wide sidewalks and bike lanes along Dublin Blvd from the Tassajara Creek Trail west to Hacienda Drive. From Hacienda Drive, a paved separated pathway, also managed by Dublin, continues to connect to the Iron Horse Regional Trail and the Dublin/Pleasanton BART Station.

3.12 VISUAL AND AESTHETIC RESOURCES

Visual resources consist of the natural and man-made features that give a particular environment aesthetic qualities. These features may be natural (e.g., mountain views) or man-made (e.g., city skyline). Together, they form the overall impression of an area, referred to as the landscape character. Visual resources also have a social setting, which

includes public values, awareness, and concern regarding visual quality. The social setting is addressed as visual sensitivity, or the relative degree of public interest in visual resources and concern over adverse changes in the quality of the viewshed.

In order to assess the quality of visual resources in the study area, this section describes the overall landscape character and visual quality and the associated visual sensitivity. Information is based on site visits conducted on October 10, 1997 (Camp Parks 2002-2005) and from September 8-19, 2003.

3.12.1 Landscape Character and Visual Quality

Landforms, vegetation, rocks, surface water, and cultural modifications are treated as characteristic of an area if they are inherent to the line, form, color, texture, and composition of the landscape. Landscape character is evaluated to assess whether a proposed project would appear compatible with the existing setting or would contrast noticeably with the setting and appear out of place. The visual quality of an area is defined in terms of the landscape character and the degree to which these features combine to create a landscape that has the following qualities: vividness (memorable quality), intactness (visual integrity of environment), and unity (compositional quality). An area of high visual quality usually possesses all three of these characteristics.

The visual character and quality of views of Camp Parks from surrounding areas and from within the installation are defined by the two principal land uses on two distinct landforms within the installation: the relatively flat, developed Cantonment Area and the primarily undeveloped grassy hills of the Training Area. Appendix B, Figure 3-20 through Figure 3-22 and Figure 3-23 through Figure 3-25 display the two very different landscapes being described.

Visual resources are described for four geographic components of Camp Parks: site-wide, the northern Cantonment Area, the Training Area, and the southern Cantonment Area (Appendix B, Figure 1-2). The visual resources in these areas are described in the following sections.

Site-wide. The Site-wide area encompasses the entire 2,478-acre Camp Parks military installation. Camp Parks is largely undeveloped due to the combination of the vast grasslands associated with the Training Area and the ruderal non-native grassland that has vegetated portions of the Cantonment Area where multiple demolished facilities have not been replaced. Overall, Camp Parks has a very low profile character to the casual viewer off site.

Northern Cantonment Area. The 317-acre northern Cantonment Area in the southern portion of the installation extends from north of 5th Street northward to about 12th Street, near the southern boundary of the Training Area. The relatively flat Cantonment Area provides facilities for indoor training, administration, housing, and equipment storage; however, many facilities have since been demolished. Views of the Cantonment Area from surrounding locations are characterized by buildings interspersed with broad areas of pavement and low-growing vegetation in vacant areas, many of which were previously

occupied by buildings. Architectural conditions within the Cantonment Area include an array of buildings that date from the Korean War–era and the 1970s.

The few contemporary buildings on the installation are the newly constructed Battle Projection Center (Building 370), 91st Training Support Division Headquarters (Building 510), WARISC (Building 610), COES Warehouse (Building 494), and Fire Station (Building 520). Major portions of sidewalks and street surfaces within the installation are visibly damaged. Trees and shrubs are sparse, and landscaping of roadways, intersections, pathways, and the perimeter of existing structures (excluding areas around newly constructed buildings) is generally lacking. Views of the Cantonment Area from surrounding locations, and from within the installation, lack visual interest and unity.

Training Area. The primarily undeveloped grassy hills of the 1,991-acre Training Area in the northern portion of the installation are used for outdoor training activities. The rolling grassy hills north of 12th Street in the Training Area are the most dominant visual element on Camp Parks as viewed from surrounding areas and from within the installation. Existing development within this area is limited to the Range Complex, which is hidden from viewers in surrounding roadways and public areas by hills and berms. In contrast to the Cantonment Area, the hills of the Training Area provide high-quality views from surrounding areas and from within the installation and contribute to the natural open space character of the region.

Southern Cantonment Area. The 171.5-acre southern Cantonment Area and 8.5-acre NASA inholding encompass the area south of 5th Street and north of Dublin Boulevard. Similar to the northern Cantonment Area, the southern Cantonment Area is relatively flat with a few large warehouse-type buildings interspersed with broad areas of pavement and low-growing vegetation in vacant areas, many of which were previously occupied by buildings. Major portions of sidewalks and street surfaces within the installation are in need of repair. Views of the Cantonment Area from surrounding locations, and from within the installation, lack visual interest and unity.

3.12.2 Visual Sensitivity

Visual sensitivity is important in assessing effects on the visual resource and whether the impact is significant. Recreational and residential uses are generally considered to have high visual sensitivity, as are views from scenic routes or corridors.

Camp Parks is highly visible to the surrounding communities of Dublin and San Ramon. Although cities do not have jurisdiction over the use of federal lands, the Army considers the guidance contained in the general plans in its decisions, to the greatest extent practicable, in order to avoid or minimize conflicts with surrounding nonfederal lands. The city's general plans provide policies and objectives with respect to scenic resources, as follows:

- The Dublin General Plan (City of Dublin 1992) states "visually sensitive ridgelands and biologically sensitive habitat areas will be protected and

incorporated into an open space system that will preserve the key elements of the area's physical character. Development intensities will be higher in the more level areas in the valley, with lower densities in the hill areas. Hillside grading will be carefully regulated to discourage major alteration of distinctive hill forms. Commercial and employment-generating uses will be located near the freeway and transit lines to facilitate efficient transportation" (p. 3).

- The San Ramon General Plan 2020 (City of San Ramon 1995) sets two goals in the plan aimed at protecting visual resources. The community values "the hillsides to the east and west of the City [because they] provide a strong open space framework and visual amenity. Preserving the integrity of these ridges will allow development to occur in flatter areas where public services are available" (p. 3-2). Additionally, "the City's most prominent visual resources are the hills to the west and Mt. Diablo and its foothills. Other natural visual amenities include San Ramon Creek within the Crow Canyon subarea, San Catanio Creek along Norris Canyon Road, and the Dougherty Hills ridgeline" (p. 4-31).

A 19.5-mile stretch of I–680 from Bernal Avenue near Pleasanton to State Route 24 in Contra Costa County was designated as a California scenic highway in October 1982 (Caltrans 2005). The scenic portion of I–680 passes to the west of Camp Parks, but the installation is not readily visible from the freeway due to the surrounding hills and development. I–580, south of Camp Parks, is an eligible state scenic highway, but has not been officially designated (Caltrans 2005).

3.12.2.1 Key Viewer Groups

Various viewer groups were established to analyze the various perspectives from the community onto the Camp Parks installation, as well as those who work and/or live on the installation itself.

- **Viewer Group 1–Motorists:** Camp Parks occupies a prominent position at the interchange of I–580 and I–680. Motorists traveling along the I–580 corridor have direct views of Camp Parks. The installation is not readily visible from I–680 because of the surrounding hills and development. Those who travel along the two adjacent local arterials—Dublin Boulevard and Dougherty Road—have direct views onto parts of the installation. Dublin Boulevard and Dougherty Road are used primarily by local residents for travel to and from the residential and commercial areas within the vicinity of the installation. Commercial, retail, housing, and public infrastructure (e.g., the BART station) are located along both arterials adjacent to the Cantonment Area, where the relatively flat landscape allows for more direct views.

- **Viewer Group 2–Residences:** Portions of Camp Parks can be seen from neighborhoods and residences in San Ramon, Dublin, and Pleasanton surrounding Camp Parks. Local residents surrounding the installation would generally be

sensitive to changes that block important views or diminish the visual quality of areas within Camp Parks.

- **Viewer Group 3–Commercial/Office Tenants:** Camp Parks is also bordered by commercial/office tenants, mainly from the south and southeast side of the installation.

- **Viewer Group 4–Installation Occupants:** Permanent occupants (e.g., military and civilian personnel and their families) and transient personnel (e.g., reserve units using training facilities) have views to most of the installation. Permanent occupants of the installation would generally be more sensitive to changes that block important views or diminish the visual quality than transient personnel and visitors with shorter and only temporary viewing periods.

3.12.2.2 Visually Sensitive Areas

Visual sensitivity is based on the context of the landscape being viewed, perceptions of viewers, and different visual characteristics of the landscape. Visual sensitivity ratings for a particular area are based on the following factors:

- Number of people viewing the location

- Type of viewer (local resident or transient personnel)

- How the area is viewed (special places that are valued by the community or a short glance while driving or continuous view from a home or office)

- Current aesthetic quality of the area (developed, industrial, or natural landscape)

- Potential for new development or other activities to reduce the quality or block the views of important visual resources for key viewing groups.

Three categories of visual sensitivity based on scenic integrity have been identified for Camp Parks: low, moderate, and high. The characteristics of each visual sensitivity category are described below. Appendix B, Figure 3-26 shows the general distribution of visual sensitivity at Camp Parks.

- **Low-Sensitivity Visual Resource Area:** Locations that have apparently been heavily altered have a relatively low visual quality (e.g., dilapidated areas of the Cantonment Area), and are not readily visible to viewer groups (e.g., areas blocked by hills or existing structures). Low-sensitivity areas are also typically visible to only limited number of people or from limited viewing locations (e.g., visitors to Camp Parks or those driving immediately adjacent to the installation).

- **Moderate-Sensitivity Visual Resource Area:** Locations that have been moderately altered and have a moderate visual quality (e.g., undeveloped grassy areas) but are readily seen by only limited viewer groups (e.g., local viewers) from relatively limited viewing locations (e.g., Dublin Boulevard and Dougherty

Road). Although areas in the moderate-sensitivity category at Camp Parks may be in the foreground for some viewers, they are considered only visible to a moderate number of people and are not visible from all locations.

- **High-Sensitivity Visual Resource Area:** Locations that appear to be intact, have a relatively high visual quality (e.g., undeveloped grassland hills or scenic corridors), and are readily seen by multiple viewer groups (e.g., local and regional viewers) from several viewing locations (e.g., I–580, Dublin Boulevard, Dougherty Road and Tassajara Road). Although areas at Camp Parks placed in the high-sensitivity category at Camp Parks may be in the midground or background for most viewers, they are visible to a lot of viewers and from different vantage points.

The evaluation ratings and criteria discussed in this section are summarized in Appendix A, Table 3-25. Appendix A, Table 3-26 provides a general rating of the visual quality, sensitivity to change, primary viewers, and sensitive visual assets and/or receptors for each of the four assessment units.

3.13 HEALTH/SAFETY AND HAZARDOUS SUBSTANCES

The hazardous substances used at Camp Parks and the health and safety concerns associated with them are similar, in many respects, to those at civilian light industrial and commercial facilities. For example, vehicle and landscape maintenance and painting operations within Camp Parks have used the same types of hazardous materials and generated the same kinds of wastes as those used and generated in the surrounding urban areas. Many locations where hazardous materials have been used or hazardous waste has been disposed of have been found in the area surrounding Camp Parks. The USEPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) active list of known or suspected hazardous substance release or disposal sites in Alameda County includes 45 locations, and the Contra Costa County list includes 29 locations (USEPA 2007). Camp Parks is an active CERCLIS site identified as USEPA ID CAR000066613, Parks Reserve Forces Training Area. The USEPA initiated a Preliminary Assessment Review of the site to determine whether any further action is necessary to protect human health and the environment from previously documented releases on Camp Parks. Numerous reports documenting work completed under the Army's cleanup programs (e.g., Installation Restoration Program) were provided to USEPA. While it is unclear when USEPA will finalize the Preliminary Assessment, the existing site characterization and assessment data for Camp Parks indicates that no additional sites will be identified beyond the sites currently being investigated.

Military training materials such as explosives, ammunition, and radioactive materials are less commonly found in the civilian sector. Radioactive materials were used at Camp Parks historically as part of research activities. Ammunition and limited explosives are still used during Camp Parks training exercises.

3.13.1 Sources of Threats to Health/Safety

Several assessments of hazardous substance uses, releases, disposal, and sampling efforts at Camp Parks have been prepared in the last decade. The most comprehensive assessments are the recent Environmental Baseline Surveys (EBSs) and sampling investigations conducted by or for the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) and the U.S. Army Reserve (USAR). These reports include the following:

- **Southern Cantonment Area:**
  - Site Inspection No. 38-EH-8703-99 Tassajara Creek Disposal Trenches and Building 109 Incinerator (USACHPPM 1999)
  - Final EBS No. 38-EH-3589-02, 187-Acre Real Property Exchange (USACHPPM 2002a)
  - Draft Results of Environmental Sampling in the 187-Acre[22] Real Property Exchange (USACHPPM 2004b)
  - Draft Sampling Results, Phase III EBS No. 38-EH-003K-05, 187-Acre[23] Real Property Exchange (USACHPPM 2004c)
  - Environmental Baseline Survey No. 38-EH-04HW-05, Building 121, NASA Site, U.S Army Combat Support Training Center – Camp Parks, Dublin (Alameda and Contra Costa Counties), California, 11 to 13 October 2005
  - Draft Implementation Report. Camp Parks, Dublin, California, Building 121 Soil Remediation (ISSI 2006)
  - Building 109 Studies, including Remedial Investigation Report-Building 109 Incinerator Site (SCS 2005a)
  - Work Plan for Quarterly Ground Water Monitoring at Building 109 (Woodward-Clyde 1996a)
  - PRFTA (Former Tank Farm)-13 Studies, including Corrective Action Plan (CAP)-Former Tank Farm (PRFTA-13) (KEMRON/MACTEC 2006a), Quarterly Groundwater Monitoring Reports (KEMRON/MACTEC 2007-2008), and Site Investigation Report – PRFTA-13 (KEMRON/MACTEC 2006b).

[22] *Current GIS measurements of this area total 171.5 acres.*
[23] *Current GIS measurements of this area total 171.5 acres.*

PRFTA-13 has been remediated and is planned to closed out with a Covenant to Restrict Usage of Property (also known as Land Use Controls [LUCs]) for a section of the site. The Covenent will restrict digging in that section's smear zone (area between 8 to 13 feet) with the State's approval.

A Final Environmental Condition of Property (ECP) is being prepared for all areas proposed for exchange and development as Dublin Crossing. The Final ECP will be finalized prior to any exchange activity and available to the public once the decision is made on the final status of the sites, whether it would be a No Further Action (NFA) determination or further removal actions with possible LUCs attached.

- **Northern Cantonment Area:**
  - Final Environmental Baseline Survey No. 38-EH-3589b-02, Northern Cantonment Area (USACHPPM 2004a)
  - Supplemental EBS of the Parade Grounds (USAR 2003a).
  - EA of Oakland Exchange (USAR 2003b)
  - Draft Camp Parks Training Site, Summary Report—Former Fire Fighting Training Site (CH2Mhill 2005b)
  - Draft Phase II Environmental Site Assessment Report, Parks Reserve Forces Training Area, Dublin, CA (SI Group 2003)
  - Camp Parks Training Site Summary Report – Soil and Groundwater Investigation of the Oakland Real Property Exchange (RPX) 32-acre Parcel, Dublin, California (CH2Mhill 2005a)
  - Environmental Baseline Survey, 31.17 Acres of Real Property, Eastern Cantonment Parks Reserve Forces Training Center, Dublin, California November (Vernadero Consulting 2003)
  - Plume Characterization at the Arsenic Drum Disposal Site Parks-7—Field Summary Report, Draft Final (Weston 2001)
  - Engineering Evaluation/Cost Analysis, Removal Action Work Plan, Parks 7 Arsenic Drum Disposal Site, Parks Reserve Forces Training Area, Dublin, CA (Weston 2003)

These EBS and EA documents provide descriptions of hazardous and toxic substance use and disposal within both portions of the Cantonment Area. The following documents are of particular importance:

- The Draft Results of Environmental Sampling (USACHPPM 2004b), which presents the results of the soil, groundwater, and other sampling at the 22

locations recommended for further investigation in the EBS for the southern Cantonment Area (USACHPPM 2002a).

- The Draft Phase III EBS (USACHPPM 2004c), which presents the results of additional investigation and sampling recommended by the Phase II EBS (USACHPPM 2004b). Results of sampling recommended at 26 locations in the northern Cantonment Area are presented in the Final EBS for the northern Cantonment Area (USACHPPM 2004a).

- Draft Phase II Environmental Site Assessment Report (SI Group 2003), which presents the results of further sampling related to four issues determined to be of concern by the Phase I Environmental Site Assessment for Parks RFTA: the potential for UST, the need to proper disposal of demolition debris with the potential to contain ACM and LBP, proximity to locations known to have contained hazardous substances, and potential contamination in Navy-era septic tanks (SI Group 2003).

The detailed information on the type and location of hazardous materials/substances presented in Section 3.13.2 is excerpted primarily from the documents listed above.

3.13.1.1 Military Activities

Military activities in the Cantonment Area have changed substantially since the original Naval Hospital, Construction Battalion Replacement Depot, and Personnel Distribution Center were established, beginning in 1942. Alameda County leased portions of the property between 1946 and the mid-1950s for use as a rehabilitation center and jail. Parts of the property were used by Alameda County as a Job Corps training center, for an unknown length of time, beginning in 1964. Since 1973, military training operations have increased to the current high level. The most recent available summary data indicate that in FY03, more than 55,194 Army and non-Army Reserve personnel were present at Camp Parks for a total of nearly 284,799 man-days.

Weapons firing ranges and other field training areas are located in the Training Area. Weapons training exercises in this area may have resulted in unexploded ordnance on the range impact areas, as well as lead contamination from small arms, rocket, and mortor fire. Additional activities in the Training Area have involved limited research using radioactive materials; fire suppression research and training; and disposal of wastes from hospital operations, vehicle maintenance, and demolition and construction activities. Hospital wastes were reportedly burned and buried in three shallow trenches (Tassajara Disposal Trenches) within Camp Parks Training Area M in the 1940s and 1950s.

Many of the military barracks, offices and other buildings in the Cantonment Area were constructed using asbestos-containing materials (ACM). Lead-based paint was used on both the inside and outside of these structures. Polychlorinated biphenyls (PCBs) were used in electrical transformers and other equipment at Camp Parks. Fuels for vehicles, used oil, and other hazardous substances were stored in underground and aboveground storage tanks (USTs and ASTs, respectively). Oil/water separators were located at car

and truck wash-racks and vehicle maintenance shops. Pesticides and herbicides were used for insect and weed control in the Cantonment and Training Areas. All of the above activities may have created sources of potential threats to the safety and health of future demolition or construction workers, trainees, tenants, or residents, if they were to be exposed to such materials at levels above health-based limits. The results of investigations to determine the presence of these possible hazards are presented in Section 3.13.2.

3.13.1.2 Hazardous Wastes

Camp Parks is a large-quantity generator of hazardous wastes. Processes that generate these wastes include vehicle maintenance and repair and building and other infrastructure maintenance. Hazardous wastes currently generated include, but are not limited to: waste fuels; used oil and antifreeze; solvents; sandblast media; expired solvents, cleaning products and chemical detection kits (training aids); and universal wastes (fluorescent light bulbs and ballasts, brake shoes, ACM, petroleum-stained rags, and waste batteries). These wastes are collected at several satellite accumulation areas and transported to the temporary storage area located behind Building 791 (USACHPPM 2004c) before being disposed at an outside waste disposal facility within 90 days. These storage areas are managed by the Environmental Office and disposal coordinated through the Defense Reutilization and Marketing Office (DRMO).

Although the types and quantities of all potentially hazardous wastes formerly generated at Camp Parks are not documented, historical records and engineering drawings indicate numerous past operations that would or could have generated hazardous, or potentially hazardous, wastes that are not otherwise documented. These historical processes include the following: vehicle washing; medical and dental facilities; photographic laboratories; dry cleaning and laundries; carpentry; woodworking; painting (including automobile painting); use of metal, plumbing, electrical, and other shops; fuel transfer and storage; radiological studies; pesticide and herbicide application; heat and power generation; and incineration. Other wastes generated may have been hazardous or subject to regulatory control according to current definitions; these include PCBs from transformers, lead-based paint, explosives, and toxic metals.

3.13.1.3 Potential Hazardous Materials or Wastes on Properties Adjacent to Camp Parks

State and federal records were searched for known or suspected releases of hazardous substances within approximately one mile of the Camp Parks boundary as part of the Environmental Assessment (EA) conducted for the Windemere BLC property exchange. The information from this EA was referenced in the EBS for the southern (USACHPPM 2002a) and northern Cantonment Areas (USACHPPM 2004a). Numerous sites containing or potentially containing hazardous substances were identified, primarily sites with leaking USTs; however, none of the sites were considered likely to affect Camp Parks.

3.13.1.4 Property Evaluation

Individual areas or buildings for the Cantonment Area were classified according to the Environmental Classification of Properties categories defined in the DoD Memorandum dated 21 October 1996 (Subject: Clarification of "Uncontaminated" Environmental Condition of Property at Base Realignment and Closure (BRAC) Installation) and 1999 Base Realignment and Closure Fact Sheet and documented in two EBSs (USACHPPM 2002a; 2004a). This classification focuses on the liabilities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The categories describe the results of extensive investigations regarding potential releases of hazardous substances and imply conclusions as to health and safety risks. For sites included in categories 1–4, all required CERCLA activities have been completed and the acreage satisfies the CERCLA requirements for transfer by deed to a non-federal entity. Sites included in categories 5–7 require additional cleanup/remediation before they can be transferred to a non-federal entity. The seven categories used for evaluation are described below.

- Type I properties are those where no release or disposal of hazardous substances or petroleum products is known to have occurred, or migrated in from adjacent areas.

- Type II properties are those where only release or disposal of petroleum products has occurred (not covered under CERCLA).

- Type III properties are those where release, disposal and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.

- Type IV properties are those where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken.

- Type V properties are those where release, disposal and/or migration of hazardous substances has occurred, and removal actions are underway, but all required remedial actions have not yet been implemented.

- Type VI properties are those where release, disposal and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.

- Type VII properties are those that are not yet evaluated or that require additional evaluation.

The Camp Parks properties placed in each category are discussed in Section 3.13.2.

3.13.2 Types of Safety and Health Threats

Threats to safety and health of personnel using the Camp Parks facility may be from personal injury or from chemical exposure. Personal injury may result from such indoor accidents as trips, falls, and other office-related mishaps, or outdoor accidents such as trips; falls; contact with plants or animals containing toxins; and exposure to, or accidents involving, the arms, munitions, and heavy equipment that are components of some of the training exercises. Safety and health threats definitely identified in the northern and southern Cantonment Areas are limited to potential exposures resulting from absorption due to skin contact; ingestion; or inhalation of constituents of hazardous substances. Exposures (direct contact with contaminated soil or debris or inhalation of vapor or particulates released from contaminated sites) are most likely to occur during excavation of contaminated soil or demolition of contaminated buildings. These exposures may occur if protective measures—such as dust control, respiratory protection (dust and vapor masks), protective clothing and gloves, and warnings to avoid or minimize contact with contaminants—are not heeded.

Common hazardous substances found at Camp Parks include petroleum-based products and asbestos building and piping insulation materials. Hazardous substances that may be present from past activities at Camp Parks include PCBs, lead-based paint, organic or inorganic chemicals from incinerator ash, burned building debris, or historical discharges to septic tanks. Potential unexploded ordnance hazards have been identified on the northern training ranges, but not within the Cantonment Area. Naturally occurring metals have been identified at elevated levels in soil and groundwater samples from the southern Cantonment Area and in background groundwater wells.

Phase II sampling was performed at 22 Type VII sites, as recommended in the EBS of the southern Cantonment Area (USACHPPM 2004a) to evaluate potential hazardous substance releases. The Phase II EBS recommended additional sampling in several areas; these areas were investigated and the results reported in the Phase III EBS (USACHPPM 2004c). To follow up on the recommendations of the northern Cantonment Area EBS and EA (USACHPPM 2002a and USAR 2003a), Phase II sampling was initiated at the 27 sites categorized as Type VII. Using the results of these follow-up investigations would help Camp Parks to identify or confirm potential releases or risks at the sites and allow construction-site operators to prevent exposures during redevelopment or construction by incorporating appropriate health and safety precautions into their plans. The buildings and areas of concern evaluated in the EBS reports are listed below by property category.

- **Type I (no release or disposal of hazardous substances):** This classification was applied to 165 buildings or areas in the northern Cantonment Area and 84 buildings (including many demolished buildings) or areas within the southern Cantonment Area, including the majority of the 8.5-acre NASA property.

- **Type II (only release/disposal of petroleum products):** Two buildings in the northern Cantonment Area were classified as Type II: Building 200, the former

MP station, and Building 312, the current Border Patrol office, where an AST is located. No buildings or areas within the southern Cantonment Area were designated Type II.

- **Type III (release/disposal/migration of hazardous substances has occurred but do not require cleanup):** No buildings or areas were designated as Type III in the northern Cantonment Area. One location within the southern Cantonment Area, the demolished Building F732, was designated as Type III. Two underground storage tanks were removed from this location in 1993.

- **Type IV (release/disposal/migration of hazardous substances has occurred and remediation is complete):** Two buildings in the northern Cantonment Area were classified as Type IV: Building 334, a former vehicle repair shop, and Building 331, where a UST may have been located. Three areas within the southern Cantonment Area were designated Type IV: Site 860, the RTS-MED Center, where a two-gallon fuel spill was cleaned up in 1994; the Former RTS-MED motor pool site, where diesel fuel-contaminated soil was removed in 1994; and areas surrounding Building 121 on the NASA property where lead contamination remediation was conducted.

- **Type V (release/disposal/migration of hazardous substances has occurred and remediation is not complete):** Two areas in the northern Cantonment Area were classified as Type V: the Former Fire Training Area and the Arsenic Drum Disposal Site near the FCI. No locations within the southern Cantonment Area were designated Type V.

- **Type VI (release/disposal/migration of hazardous substances has occurred and has not been remediated):** No locations within the Cantonment Area received this designation.

- **Type VII (properties have not been evaluated or evaluation is not complete):** Type VII was applied to 26 locations in the northern Cantonment Area and 25 locations within the southern Cantonment Area. Due to the large number of sites in these sites, they are presented in Appendix A, Table 3-27 and Table 3-28 respectively. The EBS recommendations for each of these sites, as well as the conclusions and recommendations resulting from subsequent sampling are also indicated in these tables. The six areas of concern identified in the Supplemental EBS (USAR 2003a), which focused on the Parade Grounds (a single large Type VII site), are included at the end of Appendix A, Table 3-27.

The specific sources of potential health and safety threats identified at Camp Parks are outlined in the following sections.

3.13.2.1 Soils

3.13.2.1.1 Background Soil

The soil sample analyses performed in 2003 confirmed that elevated background levels of arsenic and chromium are present in the soil throughout the southern Cantonment Area. The concentrations of these metals exceed California Environmental Protection Agency (CALEPA) Environmental Screening Levels (ESLs) and/or Preliminary Remediation Goals (PRGs), suggesting potential health concerns due to ingestion of soil or dust. Only a few of the soil samples slightly exceeded the range of background concentrations found in previous studies. A 2003 survey of soil metal background concentration revealed ambient concentrations of arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, thallium, vanadium, and zinc in shallow subsurface Camp Parks soils. The concentrations of arsenic, barium, cadmium, chromium, and nickel exceeded PRGs and ESLs (CH2Mhill 2003). This indicates that the elevated concentrations may not be due to historical Camp Parks operations or other human activities.

3.13.2.1.2 Northern Cantonment Area

As shown in Appendix A, Table 3-27, there are 34 areas that may have contaminated soil. The extent of soil contamination in these areas cannot be determined until Phase II EBS investigations are completed. However, soil sampling of the Oakland Exchange parcel in the eastern portion of the northern Cantonment Area revealed no likely environmental hazards from VOCs, semivolatile organic compounds (SVOCs), organochlorine pesticides (OCPs), PCB compounds, total organic hydrocarbon-diesel and motor oil range (TPH), or metals. No further action was recommended regarding the detected concentrations of OCP (low, probably historic), arsenic (45% of 51 samples at 9 sites slightly above ESL and background), cobalt (53% of samples above ESL including 6% above background), and TPH (isolated at depth in 3 locations) (CH2Mhill 2005a).

3.13.2.1.3 Southern Cantonment Area

As shown on Appendix A, Table 3-28, the following areas have been documented to contain contaminated soil needing remediation or further investigation: Former Buildings F109, F132, F761, F781–784, F888, F794, 130, 170, 636, 730,730C, 791/792 Former Fuel Storage Area, 793; Former Hazardous Waste Accumulation Area; 319th Signal Battalion Motor Pool; potential construction debris dump sites; Former Lumber Yards; and southeastern quadrant of southern Cantonment Area. Some of these sites have been remediated while others are under further investigation. A Final ECP is being developed for all areas proposed for exchange and development as Dublin Crossing and will be available for public review once the decision is made on the final status of the sites.

3.13.2.2 Groundwater

Shallow groundwater in the southern Cantonment Area contained barium, copper, and nickel concentrations greater than CALEPA ESLs for groundwater that is a potential

source of drinking water at all seven locations sampled in October 2003. In addition, the chromium, cobalt and lead ESLs were exceeded at four locations; the molybdenum and thallium ESLs were exceeded at five locations; and the vanadium and zinc ESLs were exceeded at six locations (USACHPPM 2004b). These results suggest that shallow groundwater should not be used as a drinking water source, although direct contact toxicity is not indicated. Use of shallow groundwater as a source for municipal use is unlikely (CH2Mhill 2005a). The widespread occurrence of these elevated metal concentrations in groundwater in the southern Cantonment Area, all at or far below 1 milligram per liter (mg/L), may support the conclusion that naturally occurring high background levels of these metals are present in soils and groundwater.

Background groundwater was sampled at six wells during the Phase III EBS in fall 2004 (USACHPPM 2004c). A statistical analysis of the mean concentration of each metal was conducted. The data indicate that the 95 percent upper confidence level (UCL) of the mean concentrations of the filtered samples was less than the CALEPA ESL for potential sources of drinking water for all metals except mercury. In unfiltered samples, the ESL was exceeded by the 95 percent UCL for cobalt, copper, mercury, nickel, and selenium. These results indicate that cobalt, copper, mercury, nickel and selenium may occur at levels above the ESLs naturally in the groundwater at Camp Parks (USACHPPM 2004c). Camp Parks plans to consult CALEPA to determine if further investigation is necessary.

Six of the seven groundwater samples collected from the southern Cantonment Area in 2003 (USACHPPM 2004b) also contained detectable concentrations of diesel hydrocarbons although only three exceeded the ESL. The highest concentration was 1.7 mg/L, indicating widespread but relatively low levels of contamination. Twelve additional groundwater samples were collected in fall 2004 as part of the Phase III EBS (USACHPPM 2004c); five of these samples were adjacent to locations sampled in 2003. None of the samples contained diesel hydrocarbons exceeding the CALEPA ESL of 100 micrograms per liter (µg/L).

Elevated metals concentrations have not been reported in groundwater in the northern Cantonment Area; however, three of the background groundwater samples collected in 2004 were located in the northern Cantonment Area. As discussed above, the 95 percent UCL for the background groundwater (unfiltered) indicates that cobalt, copper, mercury, nickel and selenium occur at levels above the ESLs.

Quarterly groundwater samples were collected from November 2001 to August 2002 from three areas: the Former Fire Training Area (northern Cantonment Area), the Building 109 Incinerator (southern Cantonment Area), and the Tassajara Creek Disposal Trenches (Training Area) (USACHPPM 2002c). Arsenic concentrations at all three sites were consistently above the USEPA Region 9 Preliminary Remediation Goals (PRGs) for tap water, but below the CALEPA ESLs for groundwater that is a potential drinking water source, except at well FTMW4 in the Former Fire Training Area. The arsenic concentration at this well is an order of magnitude higher than the other wells, and the sampling report indicates that the elevated arsenic level may be due to natural variation in the soil or a result of past practices at the site. Slightly elevated concentrations of barium,

cobalt, vanadium, and nickel were detected in a few of the groundwater wells during quarterly sampling events, but all concentrations were below the tap water PRGs. Data from analyses of samples from four monitoring wells around the Arsenic Drum Site show dissolved arsenic concentrations below PRGs and ESLs (for subsurface soils and groundwater that is a current or potential source of drinking water) (Weston 2003). The Building 109 Incinerator site underwent a Remedial Investigation Feasibility Study (RI/FS) that included a human health risk assessment. The FS has presented alternatives for remediation. The results of the FS will be evaluated by the Army and remedy for remediation will be selected.

Low levels of tetrachloroethylene, above tap water PRGs but below ESLs, were detected at several wells in the Former Fire Training Area and may be the result of past burning at the site. 2.3.7,8-TCDD was also detected above the PRG in the two samples collected from one well at the Former Fire Training Area. The PRG for nitrate was exceeded at three wells in the Tassajara Creek Disposal Trench area; the sampling report indicates that the source of the nitrate may be located near one of the wells. The EBS report did not recommend groundwater remediation in the Training Area. More recent groundwater sampling of the Oakland Exchange parcel indicated no likely environmental hazard from the presence of VOC, SVOC, OCP, PCB compounds, or metals; no further action was recommended for the detected concentrations of vanadium (all samples from 3 sites above ESL and 1 above PRG) or TPH (1 above all California screening levels) (CH2Mhill 2005a). In addition, groundwater sampling conducted at a the site of a removed UST in the RCI revealed the presence of TPH (above ESLs), copper and nickel (above ESLs but apparently background levels), and mercury and molybdenum (above ESLs and not associated with the UST) (SCS 2005b). Further sampling and site closure is being coordinated with the San Francisco Bay Regional Water Quality Control Board (RWQCB) (*pers. comm.* Chen 2005).

A Final ECP is being developed for all areas proposed for exchange and development as Dublin Crossing and will be available for public review once a decision is made on the final status of the sites, whether it is a NFA determination or further removal actions with possible LUCs attached.

3.13.2.3 Explosives

A comprehensive Ordnance and Explosives Archives Search Report for Camp Parks prepared by the U.S. Army Corps of Engineers (USACE 2003c) indicates that five areas within Camp Parks, all in the northern ranges and impact areas of the Training Area, were identified as high priority due to the potential presence of ordnance and explosives. Two of these areas are scheduled for further field investigations. No potential ordnance or explosives sites were identified in the Cantonment Area.

3.13.2.4 Asbestos

During the EBSs of selected buildings, ACM was found in approximately 58 existing buildings. ACMs or presumed to contain asbestos (PACMs) are typically found in older homes and commercial and industrial buildings constructed prior to the 1980s throughout

the country. The most common examples of these materials include: sealant (paint) on exterior asphalt sheeting, transite siding and interior wall panels, wallboard and wall texture finish, cement flue pipe, floor mastic and tile, "TSI" piping and fittings, and roofing materials.

Some buildings in the northern Cantonment Area are known to contain ACM and some have not been sampled. Prior to their demolition, the ACM in these buildings would need to be abated or deemed clear by a California-certified asbestos consultant. The EBS report (USACHPPM 2004a) listed locations in the northern Cantonment Area containing ACM; this information was summarized from asbestos surveys conducted on the installation in 1989 and 2002 (Occusafe 1989; Harding ESE 2002). The following buildings were identified as containing ACM: 200, (210 and 212; demolished after 2002 asbestos survey), 284, 300, 301, 302, 303, 304, 306, 310, 311, 312, 320, 321, 323, 330, 331, 332, 334, 340, 350, 360, 361, 362, 363, 364, 390, 391, 392, 393, 394, 500, 501, 513, 514, 521, 611, 620, 636, 731, 1151 and 1152.

The following buildings in the southern Cantonment Area have ACM or PACM: 121, 140, 141, 150, 162, 170, 180, 730, 790, 791, 792, and 796. No samples were collected from Buildings 130, 131, 171, 880, 881, 860, 861, 862 and 901, which are also in the southern Cantonment Area. Soil sampling conducted in November 2003 included 154 samples collected in 22 areas within the southern Cantonment Area (see Appendix A, Table 3-28 for areas sampled) where buildings have already been demolished. None of the soil samples, which were collected from 0 to 6 inches below ground surface, were reported to contain detectable amounts of asbestos. The Draft Sampling Report (USACHPPM 2004a), however, recommended caution in excavating in these areas, as various building materials were observed during sampling and asbestos-containing materials may be present. The work plan that was prepared and followed during soil disturbing activities in the RCI provided a protocol for minimizing fugitive dust during construction, monitoring to demonstrate regulatory compliance, and handling of ACM during construction activities (SI Group 2004c).

3.13.2.5 Lead-Based Paint and Other Lead Sources

There are multiple sources of lead at Camp Parks, including the lead-based paints used on many buildings and lead bullets fired in the target areas of the Training Area. Other possible sources of lead include metal solder, vehicle batteries, glass, ceramics, wire and electrical equipment.

The EBS report for the northern Cantonment Area (USACHPPM 2004a) summarized a previous (1998) study that documented the presence of elevated (1.0 mg/cm^3) lead concentrations in building materials (e.g., painted siding) at 25 buildings and highly elevated concentrations (2,000 mg/kg or greater) of lead in composite soil samples collected adjacent to nine of these buildings: 1100, 1108, 1112, 1117, 1125, 1130, 1132, 1137 and 1139. However, soil concentrations above the current ESL may exist at additional buildings.

Testing of painted siding or other materials is recommended prior to demolition of buildings in the northern Cantonment Area to determine whether demolition debris must be managed as hazardous waste. The EBS recommends further investigation of two existing construction/demolition debris disposal sites in the northern Cantonment Area. If painted wood or other materials that may contain lead are found in these debris areas, the EBS recommends testing to determine lead content and disposal requirements. Based on current DoD policies, the EBS recommends no further sampling for lead at this time although it notes that additional sampling and/or remediation may be required by local, state, or federal agencies. Specific testing for lead in soils around barracks (B210 and 212) that were to be demolished prior to RCI construction revealed no evidence of lead contamination in building perimeter soils (SI Group 2004a).

Although elevated lead concentrations have been confirmed in paint and soils at several locations in the southern Cantonment Area, none are residential buildings. Approximately 143 samples were collected for lead analysis at buildings or locations of former buildings within the southern Cantonment Area in November 2003. The results of this sampling event are documented in the Draft Sampling Report (USACHPPM 2004c). Seventy-one samples were collected from 13 existing buildings within the southern Cantonment Area and lead was detected above the ESL (200 mg/kg) in soil samples at or near the dripline at eight buildings. The Draft Sampling Report recommended additional sampling prior to demolition of Buildings 130, 170, 180, 790, and 792 and additional sampling and remediation at Buildings 131, 132, and 150. The Report recommends no further sampling before demolition of Buildings 141, 162, 171, 791, and 796. Seventy-two soil samples were collected from areas where buildings have already been demolished within the southern Cantonment Area. None of these samples were reported to exceed the ESL for lead.

Soil around Buildings 130, 170, 180, 790, and 792 were sampled during the Phase III EBS. Soil near Buildings 130, 170, and 792 contained lead concentrations above the San Francisco Bay Regional Water Quality Control Board (RWQCB) screening levels. The Phase III EBS recommended a risk assessment to determine the potential health or environmental threats from this lead. In 2006, NASA delineated and removed lead contaminated soil from areas under the dripline of Building 121, and confirmation soil samples provided evidence that all State action levels had been met (ISSI 2006).

A Final ECP is being developed for all areas proposed for exchange and development as Dublin Crossing and will be available for public review once the final decision is made on the final status of the sites, whether it is a NFA determination or further removal actions with possible LUCs attached.

3.13.2.6 Polychlorinated Biphenyls

The PCBs were present in electrical transformers and other equipment at Camp Parks. Post-wide PCB sampling was performed in 1999. Since that time, all transformers at Camp Parks have been inventoried, tested, and replaced if PCBs were detected above regulatory levels. PCB ballasts and transformers were removed by contractors and

disposed of by DRMO. Additional investigation was recommended for a few locations where transformers were stored on soil or releases from railroad equipment could have occurred. The Draft Sampling Report (USACHPPM 2004c) indicated that soil samples collected from the railroad spurs and Building 926 (former and current electrical substation) contained no detectable PCBs.

In 1999 and 2000, PCBs in light fixtures and on the floor of one room in Building 331 were removed for disposal. PCB-contaminated oil was flushed from hydraulic lifts at Buildings 334, 730 and 792, and the piping was grouted (Weston 2000).

3.13.2.7 Radioactive Materials

A comprehensive sitewide Radiological Historical Site Assessment of Camp Parks was performed in 2002 (USACHPPM 2002b). The assessment was based on a site reconnaissance visit and available records and environmental sample analysis data. No new samples were collected for the 2002 assessment.

Camp Parks was the site of a number of research projects using radioactive materials from 1959–1983. Research projects were regulated first by the U.S. Atomic Energy Commission (USAEC) and then by the U.S. Nuclear Regulatory Commission (USNRC). At various times throughout the 24 years that federally (USAEC or USNRC) licensed activities occurred, a number of buildings were used for research that involved the use of radioactive material.

The USACHPPM report describes ten numbered buildings used by the four radioactive materials licensees: 130 (Process Radioactive Soil Samplers); 131 (Hot cells and Laboratory); 305 (Greenhouse Laboratory/Beta Radiation Exposure of Plants); 310 (Office and Headquarters); 311 (Surface Roughness Experiments); 312 (Plant Storage/Uptake Studies); 331 (Shop and Change House/Personnel Decontamination Station); and 533, 553 and 570 (Radioactive Fallout Behavior Experiments). Buildings 533, 553 and 570 were situated on a 17-acre site that was transferred to the U.S. Department of Justice in 1972 as excess property. These three buildings were demolished to enable the construction of the FCI. Seven additional locations used in radioactive materials research are listed in the USACHPPM report: Plant Root Uptake Area (between Buildings 331 and 332), Explosive Test Pond, Surface Roughness Area, Gamma Radiation Range, Animal Farm, Fallout Shelter, and Land Target Complexes.

The radiological assessment determined that there has not been any radioactive research at Camp Parks since 1983. Radioactive waste generated during research projects was drummed and transported by a vendor to a licensed disposal site. The area between Buildings 331 and 332 was reported to have a radiation level of 15 micro-R/hr, or twice natural background. Surface soil and groundwater samples collected by the U.S. Army Environmental Hygiene Agency and USACHPPM in 1981 and 1992 contained concentrations of radioactive materials that are indistinguishable from natural background.

Based on the available data, the USACHPPM report concluded that there is no residual radioactive contamination that exceeds the radiation limits established in 10 CFR 20.2002. All buildings and areas may be released for unrestricted use. No further radiological surveys or collection of environmental media for radioactivity analyses are required or recommended.

3.13.2.8 Pesticides and Herbicides

Pesticides and herbicides were used at numerous locations throughout Camp Parks. According to the EBS for the northern Cantonment Area, herbicides such as 2,4-dichlorophenoxyacetic Acid (2,4-D) and 2,4,5-trichlorophenoxyacetic Acid (2,4,5-T) were used along rail lines and fences. Insecticides including chlordane and arsenic were commonly used in barracks and mess halls. No records were found that indicate improper application or spills of these materials.

The "Arsenic Drum Site" is the only location that has been found where pesticides were apparently improperly disposed of. This site is on the eastern side of Monroe Avenue near the intersection with 7th Street, on land leased to the Bureau of Prisons. The Bureau of Prisons found a buried drum in 1997 and follow-on investigations found two additional areas where drums (one 30-gallon and one 10-gallon drum) were buried. The 30-gallon drum contained residual liquid arsenate and the 10-gallon drum contained residual arsenic powder. High concentrations of arsenic were found in the soil around and beneath the drums, as well as trace concentrations (a few parts per million) of 1,1'-(2,2-Dichloroethylidene)bis-[4-chlorobenzene] (DDD),1.1'-(Dichloroethenylidenene)bis (4-chlorobenzene), 1.1'-(Dichloroethenylidenene)bis(4-chlorobenzene) (DDE), and 1,1'-(2,2,2-Trichloroethylidence)bis[4-chlorobenezene) (DDT). Approximately 30 cubic yards of contaminated soil had been removed and disposed of as hazardous waste as of July 2002 (Weston 2001). The field survey report on this removal recommended that additional be collected (additional soil samples, groundwater samples, geotechnical studies) to guide response actions. A work plan has been developed for these studies (Weston 2003).

Roundup®, the primary herbicide currently used to control weeds in limited areas within the installation, is not bioaccumulative and has an average soil half-life of about 40 days, according to the manufacturer (Monsanto). Two locations within the southern Cantonment Area were sampled for pesticides and herbicides during November 2003: the railroad spurs and the drainage ditch adjacent to the Former Hazardous Waste Storage Area. Samples from the railroad spurs area contained no detectable herbicides; however, soil samples from the drainage ditch adjacent to the Former Hazardous Waste Storage Area contained chlordane and endrin at concentrations above ESLs. Soil at the Former Hazardous Waste Storage Area and the adjacent drainage ditch were sampled for organopesticides during the Phase III EBS. Several samples contained pesticide concentrations that exceeded the RWQCB screening levels. In March 2005, 53 soil samples and three groundwater samples collected from eight locations. At two locations, surface and near surface soil samples contained chlordane, DDT, and DDE concentrations, all of which were below ESLs; no pesticides were detected in the

groundwater samples (CH2Mhill 2005a). The Phase III EBS recommended that a risk assessment be performed to determine if the pesticide concentrations in the soils pose a threat to human health or the environment. A health risk assessment was scheduled for 2006. A Final ECP is being developed for all areas proposed for exchange and development as Dublin Crossing and will be available for public review once the final decision is made on the final status of the sites.

3.13.2.9 Petroleum Storage Tanks

UST and AST sites were evaluated in the recent EBS reports (USACHPPM 2002a and 2004a). Many USTs were installed during early development of Camp Parks to provide fuel for oil-burning heaters. Natural gas was not available until the 1950s. The EBS reports summarized information from previous tank removal reports (e.g., Navy 1994) as well as record searches and on-site observations during the EBS work. As noted in Appendix A, Table 3-28, USTs were removed at four locations (Buildings F109, 200, F770, and F888) and may exist (or may have previously existed) at three other locations in the southern Cantonment Area (Buildings F132, F151, 792 (Former Fuel Storage Areas at the 319th Signal Battalion Motor Pool and 761), and 180. In addition, USTs were present at the sites of former buildings (e.g., B1135, B1136, B770, B1180,) and the closure report prepared for these sites recommended that no further studies be performed (Woodward-Clyde 1996b). Diesel-range petroleum products were detected above RWQCB screening levels in surface and subsurface soils at the Former Fuel Storage Area during the Phase III EBS. Since it is not known whether additional USTs are present or absent at this site, the EBS recommended additional investigations to determine the extent of soil and groundwater contamination and to determine whether USTs are still present.

Benzene, toluene, ethylbenzene, xylenes (BTEX), and diesel fuel have been detected in the shallow groundwater at the Former Post Gas Station (former Building 888), which was demolished in 1998. Migration of fuel contaminants has occurred.

Both USTs and an AST were formerly located at Building F761, the Former Fuel Dispensing Station, north of Building 730. Approximately 2 to 3 acres is impacted by fuel in the soil and groundwater at this site. Remediation of the site was therefore planned.

A site inspection was performed at former Building 109, the Former Navy Incinerator, in 1999 (USACHPPM 1999) to investigate the former incinerator, ash disposal pit, and the former diesel fuel UST at the site. The investigation included installation and sampling of three new monitoring wells, sampling of three wells installed in 1995 (Woodward-Clyde 1995), and collection of soil samples from three soil borings. Arsenic and lead were detected at concentrations above USEPA Region 9 PRGs in soil samples. Only trace concentrations of organic contaminants were detected, including dioxins/furans in one soil sample (below the Region 9 residential PRG). One well, MW-3, was reportedly impacted by the release of diesel fuel from the damaged tank. Between November 2001 and August 2002, four quarterly sets of groundwater samples were collected from six wells associated with former Building 109. Of 16 metals analyzed, only arsenic

exceeded its PRGs, as did bis(2-ethylhexyl)phthalate (a possible artifact). Barium concentrations were consistently between its PRG and ESL, while nickel concentrations exceeded their ESL in about 17 percent of the samples. No further action at this site is recommended (USACHPPM 2002c).

USTs were removed from the following locations in the northern Cantonment Area: Buildings 200, 1100, 1105, 1135, 1136, 1138 and 1139. Piping from most of these tanks was left in place because the delivery lines ran under the building foundations. One UST at Building 1108 was closed in place by filling with cement grout. Records from removal work at several of these locations have apparently been lost, and additional sampling may be necessary to obtain closure approval. Possible (unconfirmed) UST locations include Buildings 232, F250, 251, F305, 331, 332, 341, 515, 691, 1110, 1112, 1115, 1117, 1118, 1120, 1121, 1123, 1125, 1130, and 1132. The EBS report indicates that additional USTs may exist at other unidentified locations in the northern Cantonment Area. ASTs were removed at Buildings 312, 521, and 1180. Also, during excavation for the RCI, two previously unknown USTs thought to represent Navy-era fuel oil tanks were discovered and removed (*pers. comm.* Shevlin 2005). In the vicinity of the Oakland Exchange site, a magnetometer survey was conducted that collected data on subsurface anomalies that might indicate UST presence. Within the 43-acre survey area, further investigation was recommended on 59 suspected anomalies (for verification of their likely association with known facilities) and 65 unknown anomalies (for investigation of their source). Further study was initiated at some of these locations (Bobbitt 2005).

Geophysical surveys have been performed for the entire Cantonment Area to identify USTs and/or buried debris that could potentially pose a risk to human health. Magnetic anomalies warranting further study based on size, orientation, and location have been investigated and identified through excavation. These include Navy septic tanks, two USTs/vaults within the RCI Family Housing, buried construction and demolition debris at a number of locations, and former building foundations at multiple locations from the Navy and Air Force Eras.

3.13.2.10 Other Underground Tanks and Piping

The presence of "Navy-era" concrete septic tanks is indicated by recent construction work, geophysical studies, and historical engineering drawings, according to the northern Cantonment Area EBS report (USACHPPM 2004a). Three septic tanks have been sampled and discharged into the sanitary sewer system, two at the CA ARNG construction site and one at the RCI parcel. No contamination was found in the water or sediments in these tanks, which could have been settling tanks used to minimize the total solids discharged from the Navy sewer system (SI Group 2003). The EBS for the southern Cantonment Area does not indicate the presence of similar structures. However, the potential exists for the discovery of such tanks during excavation of the southern Cantonment Area.

The northern Cantonment Area EBS recommends additional investigations to evaluate existing active and abandoned buried utility piping. This is because the pipe bedding and

trench fill material (often gravel) may provide migration pathways for contaminants. Data on samples of the Navy-era septic tank contents revealed no environmental hazards (CH2Mhill 2005a).

According to the EBS reports, oil/water separators were located at Buildings 636 (Fire Station), 730, F781-F784, 862 and F888 in the southern Cantonment Area and at Building 1160 in the northern Cantonment Area in association with vehicle washracks. Historical discharges from cleaning and degreasing of vehicles, parts, and engines may have contributed solvents to the wastewater streams at most of these locations. At Building 730, the separator discharged to an oil drainage pit that leaked. The pit was filled with concrete in 2001; however, petroleum hydrocarbons and diesel remain in the surrounding soil. The oil drainage pit and impacted soil are scheduled to be removed and disposed of in 2006. Similar discharges at other locations may have resulted in releases of solvents, as well as oil and fuel hydrocarbon contaminants, to the environment. Additional investigations are recommended to evaluate potential releases at these sites.

3.13.2.11 Construction Debris Dump Sites

Large mounds of soil and debris are present north of Dublin Boulevard in the southernmost portion of the southern Cantonment Area. These mounds were present prior to the early 1980s, and the source(s) of the debris and the contents of the mounds have not been fully determined. The mounds were covered with vegetation during the site visit for the EBS work but have since been leveled on site. Some of the reported contents of the mounds include concrete rubble, waste asphalt paving material, soil excavated from water line trenches, clay pipe, telephone poles, and grass clippings. Soil containing a strong petroleum odor was present in the western portion of the northern debris pile, west of Camp Parks Boulevard. A series of 30 small trenches were dug in the vicinity of the mounds west of Camp Parks Boulevard in 2003 to determine whether the wastes extend beyond the mounds. Most of the trenches encountered only soil; however, several areas beyond the mounds were found to contain concrete rubble, trash, and wood to depths of 4–5 feet and to 10 feet at one location. The EBS report recommends excavation, characterization, and appropriate disposal of these wastes followed by backfilling with clean soil. The mounds to the west of Camp Parks Boulevard have been leveled by DPW on site.

3.13.2.12 Former Fire Training Area

Fire training exercises were conducted from 1979–1992 in an area between 6th and 7th Streets, and Loring and Monroe Avenues. The burn pit was approximately 20 feet square and 10–12 feet deep. Gasoline was used for ignition during some wood fire suppression training. Water was used for most fire suppression training, with aqueous film-forming foam used on rare occasions. The pit was backfilled in 1992 and the remaining ash was buried because the Bay Area Air Quality Management District would no longer grant permits for the training burns.

Four soil borings were sampled at the site in 1995, with only minor hydrocarbon contamination detected in two of the 13 soil samples. USACHPPM collected additional

soil samples from 14 soil borings in 2000 and installed nine monitoring wells in 2001 (USACHPPM 2002d). The soil and groundwater samples were analyzed for a wide range of potential chemicals of concern (COCs). The most significant COCs detected were low concentrations of chloroform, tetrachloroethene (PCE), and dioxins/furans. Four quarterly sets of groundwater samples were collected from these wells from November 2001 to August 2002. Because the total equivalent concentration of dioxins/furans in some samples exceeded the USEPA Region 9 PRG of 0.45 parts per trillion, and chloroform, PCE, and arsenic were detected slightly above regulatory limits, USACHPPM (2002c) recommended consultation with regulatory agencies to determine further site characterization and remediation requirements. This site was further characterized in 2005 and no further action was recommended at this site (CH2Mhill 2005b). Concurrence for no further action was received from CALEPA in 2005.

3.13.2.13 Training Area Disposal Sites

Disposal sites in the Training Area and the Cantonment Area were evaluated in a Relative Risk Site Evaluation (RRSE) report (USACHPPM 1998). The Cantonment Area sites were also addressed in the more recent EBS reports. Several other disposal sites in the Training Area were identified in a Preliminary Assessment by Woodward-Clyde (1994); these are not included in this discussion.

The seven Training Area disposal sites addressed in the RRSE are widely dispersed across the Training Area. All of the sites were assigned low relative risk ratings, although additional sampling and other investigations were recommended to provide adequate data to support recommendations for no further action at four sites. Only one site, the Former Disposal Area, is located near any proposed redevelopment or construction sites. These seven Training Area disposal sites are individually characterized in the following paragraphs.

The Former Disposal Area is located near the northwest corner of the property occupied by the FCI. The disposal area is approximately 50 feet wide and 200 feet long. Construction debris was reportedly disposed of at this location, and debris was exposed during the RRSE site visit. No monitoring wells are present at the site. A surface water sample collected from the stream adjacent to the disposal site was analyzed for metals, VOCs, and SVOCs. VOCs and SVOCs were not detected; low concentrations of arsenic and barium were detected. No contaminant migration or receptor pathways were identified; therefore, no further action was recommended for this site.

The Navy Pool is located near the western edge of the Training Area, approximately 500 feet west of Building 1199. The concrete-lined pond was used to train Navy welders to weld underwater and later for corrosion and dispersion studies. Radionuclides and explosives were used in some studies. A radiochemical survey conducted in 1969 released the site for unrestricted use. The pond was filled with soil and construction debris. A groundwater sample was collected from a well approximately 500 feet downgradient of the site for the RRSE. The radiological analysis of this sample indicated

levels below Nuclear Regulatory Commission allowable intake values; therefore, the site was recommended for no further action.

The Davilla Dam Disposal Piles are located in the north-central part of the Training Area and consist of approximately 57 mounds of soil. Reportedly, radiologically contaminated soil was buried at this site, but no documentation supporting this contention was found. Three background and three soil mound samples were collected for the RRSE. Gross alpha and beta readings from the mound samples were similar to background levels. No contaminant migration or receptor pathways were identified; therefore, the site was recommended for no further action.

The Tassajara Disposal Trenches are located near the eastern boundary of the Training Area. The trenches were not addressed in the RRSE, except in the recommendation to perform a CERCLA site inspection. The Preliminary Assessment (Woodward-Clyde 1994) identified buried debris, including drums, at the "Abandoned Landfill" that is apparently the same site. The landfill area was reportedly identifiable in aerial photographs from 1954 and 1957. A site inspection was performed in 1999 (USACHPPM 1999), including installation and sampling of six monitoring wells and collection of three surface water samples from Tassajara Creek. Arsenic was detected at concentrations above USEPA Region 9 PRGs in most samples, including upstream and upgradient (groundwater) samples. Only trace concentrations of organic compounds were detected, and most of these were also found in the blank (quality control) samples. Four quarterly sets of groundwater samples were collected from these wells, from November 2001 to August 2002. The analyses confirm the absence of significant VOCs and SVOCs in groundwater samples due to the wastes in the disposal trenches (USACHPPM 2002c).

The Burn Pits are located near the eastern boundary of the Training Area, approximately 1,000 feet south of the Tassajara Disposal Trenches. This area contains three pits reportedly used in the 1940s and 1950s for incinerating wastes generated at the former Naval hospital. Soil samples from 4 to 5 feet below ground surface were collected during the RRSE for determination of metal, SVOC, and gross alpha and beta content. Barium and chromium were reported as somewhat elevated, although background concentrations were not reported. Potential contamination of perched (shallow) groundwater was identified as a concern that should be evaluated by further investigation, i.e., installation and sampling of monitoring wells (CH2Mhill 2005b).

The Chemical Burn Area is located in the west-central portion of the Training Area. This site was reportedly used to test the effects of burning various chemicals, but no records of specific activities or chemicals were found. Two soil samples were collected for the RRSE and analyzed for VOCs only. Trace levels of 2-butanone and naphthalene were reported. Additional investigation was recommended to determine whether a formal site inspection (sampling) is needed.

The Demolition Pits are located in the north-central portion of the Training Area. Three pits were used for training in the use of explosives. From 1962 to 1973 this was also the location of a cobalt-60 irradiation facility. Radiological surveys of the area in 1981 and

1991 indicated that there were no levels of radiation above background (Cobalt 60 has a short half life of 5.27 years). For the RRSE, a soil sample was collected from a nearby drainage ditch, and two groundwater samples were collected from downgradient wells. Explosives were not detected in the soil sample, but RDX (cyclotrimethylenetrinitramine) was detected at 1 part per billion in one groundwater sample. Low concentrations of nitrate/nitrite (possible explosive residue) were also detected in both soil and groundwater samples. Additional groundwater investigation was recommended.

4 IMPACTS ASSOCIATED WITH THE PROPOSED ACTION AND ALTERNATIVES

This chapter discusses potential impacts from implementation of the Proposed Action, Slow Growth Alternative, or No Action Alternative on the Camp Parks environmental resources characterized in 3. This chapter uses commonly accepted terminology to discuss environmental impacts. This terminology is briefly discussed in this section to explain the approach used to analyze impacts. The resource-specific implementation of this approach and resource-specific impacts are discussed in Sections 4.1 through 4.13. Impacts are briefly summarized by alternative in Section 4.14.

Both adverse (negative) and beneficial (positive) impacts are discussed. Either type of impact can be direct, indirect, or cumulative. Direct impacts are caused by the action and occur at the same time and place as the action. Indirect impacts are caused by the action but occur later in time or at a location removed from the place of the action, but are still reasonably foreseeable and related to the action by cause and effect. Cumulative impacts 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. Direct and indirect impacts are discussed in this chapter, and cumulative impacts are discussed in 5.

Direct, indirect, and cumulative impacts may or may not be significant. Determination of significance requires consideration of the context, intensity, and duration of the impact. Context relates to the environmental circumstances at the location of the impact and in the immediate vicinity, as well as to the interests that are potentially affected. Intensity refers to the severity or extent of the impact or magnitude of change from existing conditions. Duration refers to the permanence and longevity of the impacts.

Specific significance criteria, assumptions, and region of influence (ROI) considered for impacts vary by resource. Significance criteria are based on law, regulation, legal issues, accepted scientific knowledge, and best professional judgment to provide thresholds beyond which impacts would be considered significant. The evaluation of significance for both adverse and beneficial impacts uses existing conditions as a benchmark. The ROI describes the geographic extent in which a resource may be impacted by the action. The ROI may be defined by natural boundaries (such as a watershed), political boundaries (such as a county), home range (such as foraging area or defended territory for wildlife), or regulation-driven norms for a resource (such as 50 kilometers for one aspect of air quality).

The analysis in this chapter considers impacts in relation to time and space. The duration of impacts is described as either short term or long term. Short term is defined as anticipated to begin and end within zero to five years of implementing the action. Long term is defined as lasting beyond five years to the end of or beyond the 25-year planning timeframe addressed in the Master Plan. Impacts will be evaluated for appropriate geographical areas: site-wide, the northern Cantonment Area, Training Area, and southern Cantonment Area (to be developed as Dublin Crossing). Site-wide impacts

refer to those that would occur for the entire 2,478-acre military installation. Impacts for the northern Cantonment Area include the 362 acres remaining in federal ownership. Training Area impacts refer to the largely undeveloped area to the north of the Cantonment Area. The impact discussion for Dublin Crossing refers to the 180-acre exchange area that is proposed for exchange out of federal ownership under the Proposed Action.[24] In addition, some of the impacts resulting from the action, such as impacts on traffic, air quality, and wide-ranging wildlife species, may extend beyond the existing boundaries of Camp Parks.

This section is organized by resource and closely follows the organization of 3. Impacts to resources in the southern Cantonment Area as a result of the Dublin Crossing development will be discussed in general terms, as the specific building locations have not yet been designated. To facilitate this discussion of impacts, Appendix B, Figure 1-1 individually identifies existing facilities and Appendix B, Figure 1-2 individually identifies proposed facilities that would be constructed under the Proposed Action.

4.1 AIR QUALITY

The potential impacts of the Proposed Action and its alternatives on air quality at Camp Parks were evaluated and are described in the following sections. Section 4.1.1 discusses the types of impacts that may occur if existing facilities are demolished in the South Cantonment area, buildings and roads are constructed in the North Cantonment area, and emission producing activities increase throughout Camp Parks, including the training areas. Section 4.1.2 discusses expected impact occurrences based on calculation of emissions associated with construction activities, vehicular traffic, and general land use. This discussion focuses on the Proposed Action and compares impacts among the other alternatives. Section 4.1.3 discusses mitigation of the potential impacts to air quality resulting from the Proposed Action and its alternatives.

The ROI for air quality includes not only the area within the Camp Parks boundary, but also the City of Dublin and the entire BAAQMD which is potentially affected by the emissions. Adverse impacts to air quality would be considered significant if any of the following situations occur:

- The action caused air pollutant emissions to exceed the BAAQMD thresholds for ROG, NO_x, and PM_{10}, or USEPA thresholds for $PM_{2.5}$, SO_2, or CO as shown in Appendix A, Table 4-1.
- The action caused air quality at Camp Parks to exceed the CAAQS for CO or other attainment pollutant or exacerbated an existing exceedance of a CAAQS or NAAQS for any air pollutant.

[24] *The acreages provided in these three sentences reflect the revised boundaries between the northern Cantonment Area and the Training Area discussed in Section 4.5.2.1.*

- The action obstructed the implementation of an applicable air quality improvement plan.

Beneficial impacts to air quality would occur if the Proposed Action promoted reductions in vehicular emissions resulting in consolidation of facilities, thus minimizing the need to drive on base.

In addition to the assessment of significance, a determination must be made that this federal action conforms to the applicable State Implementation Plans (SIPs) for ozone and PM_{10} and the air quality maintenance plan for CO before the action is taken.

4.1.1 Impact Types

The following assesses the potential for elevated air pollutant concentrations resulting from dust generated during demolition and construction activities and pollutant emissions from traffic movement, construction equipment, landscaping equipment, heating/utility fuel consumption, and architectural coating of new structure and facilities. Air pollutant emissions have the potential to impact air resources on both a regional and local scale.

Demolition, construction, and operational emissions resulting from the development have the potential to produce local areas of high ambient concentrations thereby leading to future or exacerbating an existing nonattainment situation. Emissions from development may conflict with or obstruct implementation of the SIP for ozone or PM_{10} or the maintenance plan for CO, or may impede future efforts to reduce ambient $PM_{2.5}$ concentrations. These emissions would emanate from construction activities and local traffic. Emission increases can also make acquisition of permits for new emission sources difficult, and traffic to and from Camp Parks could contribute to adverse regional cumulative increases of criteria air pollutants or their precursors currently being managed under a SIP or maintenance plan.

4.1.2 Impact Occurrence

The Urban Emissions model (URBEMIS) was used to calculate emissions for the Proposed Action, the No Action Alternative, and the Slow Growth Alternative to determine whether impacts exceed BAAQMD or USEPA Significance or General Conformity *de mininis* thresholds. The following is a brief description of each alternative:

- Assessment of the **No Action Alternative** looks at emissions associated with existing activities at Camp Parks and calculates future emissions due to on-site utility fuel consumption, training activities, and off-site vehicular traffic to/from Camp Parks as well as on site between various facilities in the South Cantonment area and other parts of the installation (with an average on-site trip length of 1.5 miles).

- Assessment of the **Proposed Action** looks at future emissions that would result from the demolition of facilities in the South Cantonment area as part of the RPX, construction of new facilities in the North Cantonment area, on-site utility fuel consumption, training activities, and off-site vehicular traffic to/from Camp Parks as well as on site between various facilities in the North Cantonment area and other parts of the installation (with an average on-site trip length of 0.8 miles). Development is assumed to take place over a 5-year period.

- Assessment of the **Slow Growth Alternative** looks at the same emission scenarios as the Proposed Action, except development is assumed to take place over a 20-year period.

Additionally, emissions resulting from the development of Dublin Crossing and all other proposed projects within the City of Dublin were calculated to assess the cumulative impacts of the projects and the degree to which the Proposed Action contributes to these impacts. The assumptions adopted for the emissions calculations are described in Appendix D-2.

4.1.2.1 Impacts Anticipated Under Proposed Action

Emissions were calculated separately for the Proposed Action, the No Action Alternative, and the Slow Growth Alternative. The emissions for the No Action Alternative served as an estimate of baseline emissions and were subtracted from the other alternatives to determine the net emissions increase for each alternative. Results from these calculations are presented in Table 4-2 and Table 4-3 of Appendix A in terms of lb/day and ton/yr, respectively. A detailed presentation of the results is presented in Appendix D-2, and Appendix D-3 contains the output of the URBEMIS model for representative model runs. Multiple model runs using identical input values were made for various calendar years to calculate emissions for various fleet mixes.

In summary, the No Action Alternative shows a continuous decline in estimated emissions from current levels, primarily resulting from natural retirement of older vehicles from the fleet and subsequent replacement with lower emitting vehicles. Consequently, emissions from the Proposed Action result in emissions increases over the No Action Alternative in the first few years of the action, but eventually the net emissions fall below current levels. The Proposed Action would produce maximum emissions, between 2009 and 2015, during the height of construction/demolition activities and in the midst of the expected increase in daily personnel on base. Selection of a 5-year project schedule causes the emission estimates to be higher than if a longer period was assumed, due to concentrated construction activity emissions and higher estimated tail pipe emissions in earlier years of the assessment. The peak in the emissions varies by year depending on the pollutant and also varies depending on calculation in terms of lb/day or ton/year. After 2014, emissions from construction and demolition activities cease and the estimated emissions decrease in a manner similar to the No Action Alternative. Under the Proposed Action, using this accelerated project schedule, calculated increases in all pollutant emissions due to construction and operational activities at Camp Parks are less

than their respective BAAQMD and USEPA thresholds and therefore not considered significant.

The maximum increase in CO emissions from the Proposed Action is 304 lb/day. Because this increase in CO emissions resulting from the Proposed Action is anticipated to be below BAAQMD threshold, a CO hot spot (CALINE4) analysis was not performed for either the Proposed Action or Slow Growth Alternative.

4.1.2.1.1 Conformity Analysis

The results in Tables 4-2 and 4-3 show that the increases in emissions resulting from the Proposed Action fall well below the *de minimis* threshold for each applicable pollutant. Thus, the Proposed Action complies with the General Conformity regulations, and emissions resulting from the Proposed Action conform to plans to bring the area into attainment and/or maintain the area in attainment with the CAAQS and NAAQS.

4.1.2.2 Comparison of Other Alternatives

The No Action Alternative results in future net decreases in emissions of each pollutant based primarily on the retirement of old vehicles and the replacement of those vehicles with lower emission vehicles. As with the No Action Alternative, the Slow Growth Alternative also shows a general decline in future emissions from current levels, with small future increases during construction activities and as a result of increases in on-base personnel. The Slow Growth Alternative likewise produces less than a significant increase in air pollutant emissions. The only other possible alternative would be further variation on the overall construction schedule; however, the 5-year schedule assumed for the Proposed Action would produce a higher estimated emission than any alternative construction schedule.

4.1.3 Proposed Mitigation

Although the Proposed Action is not expected to result in a significant impact to air quality, a number of mitigation measures have been identified to reduce potential air quality impacts associated with implementation of the Proposed Action. These measures represent best management practices (BMP) and are identified by phase of activity to include Proposed Construction Phase Mitigation (4.1.3.1) and Proposed Operational Phase Mitigation (4.1.3.2).

4.1.3.1 Proposed Construction Phase Mitigation

A Construction Emissions Mitigation Plan (CEMP) for fugitive dust and diesel particulate matter (DPM) would be prepared by the Army prior to the beginning of significant demolition or construction activity associated with the Updated Master Plan. The following mitigation measures would be included in the CEMP in order to reduce impacts associated with emissions of ozone precursors, particulate matter and air toxics from construction-related activities:

- Ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

- Prohibit engine tampering to increase horsepower, except when meeting manufacturer's recommendations.

- Locate diesel engines, motors, and equipment staging areas as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals).

- Require the use of ultra low sulfur diesel fuel (<15 ppm sulfur) for diesel construction equipment, if available.

- Reduce construction-related trips of workers and equipment, including trucks. Develop a construction traffic- and parking-management plan that minimizes traffic interference and maintains traffic flow.

- Use lower-emitting engines and fuels, including electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations where possible.

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate, to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.

- Install wind fencing and phase grading operations where appropriate, and operate water trucks for surface stabilization under windy conditions. When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph at the construction site.

4.1.3.2 Proposed Operational Phase Mitigation

The following mitigation measures could be implemented, to the extent that funding is available, in order to reduce impacts associated with emissions of ozone precursors, particulate matter, and air toxics from operational and training-related activities:

- Promote energy efficiency incentive programs.

- Design non-residential projects with bicycle lockers and/or racks.

- Provide for separate, safe, and convenient bicycle and pedestrian paths connecting residential, training, and administrative uses.

- Provide a development pattern that eliminates physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential areas that impede bicycle or pedestrian circulation.

- Identify applicable measures to reverse the urban heat island condition by providing strategically-planted vegetation and reflective surfaces.

- Acquire and operate rideshare zero-emission vehicles for on-base travel.

4.2 TOPOGRAPHY, GEOLOGY, MINERALOGY, AND PALEONTOLOGY

The potential impacts of the topography, geology, mineralogy, and paleontology at Camp Parks on the type and location of construction under the Proposed Action or its alternatives, as well as the impacts of the Proposed Action or its alternatives on the site topography, geology, mineralogy, and paleontology, were evaluated for each land use category (Appendix B, Figure 2-1). Section 4.2.1 discusses the types of impacts that may occur when buildings and roads are constructed on the different areas at Camp Parks. Section 4.2.2 discusses the expected occurrence of these impact types geographically. This discussion focuses on the Proposed Action and compares the other alternatives to it. Subsection 4.2.3 discusses mitigation of the potential impacts to structures for human occupancy located in areas containing topographic or geologic hazards for each alternative.

The ROI for topography, geology, mineralogy, and paleontology includes the entire area within the Camp Parks boundary. The following assumptions were made when analyzing impacts to proposed facilities from geologic and seismic hazards:

- The locations of fault traces associated with the Calaveras Fault are approximate. The official Earthquake Fault Zone (EFZ) map of the Dublin quadrangle, where Camp Parks is located, has not been completed. The EFZ map for the Contra Costa County portion of the site is in progress and the EFZ map for the Alameda County portion is "planned," according to the California Integrated Seismic Network website.

- Locating the proposed facilities based on the results of approved fault zone investigations is sufficient to prevent significant damage caused by earthquakes reasonably expected to occur in the Calaveras EFZ at Camp Parks.

- Potential impacts to structures or roads located within the EFZ but outside the active fault trace and the area within 50 feet on either side of the trace are expected to be less severe and not result in building collapse.

- Liquefaction susceptibility of geologic units was estimated by assuming a worst-case scenario that groundwater occurs at a depth of less than 10 feet.

- Common mitigation measures for constructing in areas of medium to high liquefaction susceptibility, or lower, would be sufficient to prevent significant damage to the new facilities.

For the purposes of this discussion, an action would result in a significant impact if any of the following situations occurs:

- There is a substantial change to the topography.
- People, structures, or property are exposed to landslides or other mass movement processes that have the potential for loss of human life or significant property damage.
- People or structures are exposed to geologic hazards, such as earthquake-induced ground shaking, ground surface rupture, or other ground failure, that have the potential for loss of human life or significant property damage.
- Identified active faults at the site prevent future development of Camp Parks or require development plans to be substantially altered in order to comply with the Alquist-Priolo Earthquake Fault Zone Act of 1973, as amended.
- The action conflicts with other regulatory requirements.

4.2.1 Impact Types

Potential impacts associated with seismic activity include collapse of buildings that could occur under a worst case scenario if a structure were built on a fault trace and substantial surface displacement or fault creep occurred during an earthquake. Potential impacts to parking areas and roads include breaking up of the pavement and disruption of fencing.

Liquefaction of surficial geologic units or soils caused by earthquake shaking or other rapid loading, such as blasting related to construction activities, reduces the strength and stiffness of the unit and overlying soil. This reduction in strength decreases the ability of the deposit to support foundations for buildings and bridges. Liquefied deposits also can exert pressure on retaining walls, causing them to slide or tilt, or may cause settling of the retained soil and destruction of structures on the ground surface. Liquefaction has been responsible for substantial damage during historic earthquakes. Potential impacts to structures or roads built on deposits or soils that are highly susceptible to liquefaction include cracking, tilting, or collapse.

Mass movement of earth materials includes creep, landslides, and earthflows that could damage or destroy buildings.

4.2.2 Impact Occurrence

4.2.2.1 Impacts Anticipated Under the Proposed Action

Of the nine active faults associated with the Calaveras Fault EFZ in the Cantonment Area, three are expected to potentially impact structures and roads built under the Proposed Action. Review of Appendix B, Figure 4-1 shows that 32 structures (18 buildings and 8 parking areas) and portions of many new roads would be constructed in the Calaveras Fault EFZ in the northern Cantonment Area, as well as an unknown number of structures in the southern Cantonment. Any building located in the EFZ would likely require a geophysical investigation to identify faults and fault zones. If active fault traces are identified, buildings must be moved at least 50 feet away. The following buildings and parking areas may be located on an active fault trace based on the proposed building locations overlain with the approximate California fault traces shown in Appendix B, Figure 4-1:

- Operations Land Use Category: building P024
- Housing Land Use Category: buildings P012, P010, and P009, and parking area PK10.
- In addition, the following buildings would be located within the Calaveras Fault EFZ:
- Operations Land Use Category: buildings P028, P026, P025, P023, P007, P006, P005, and P001, and parking areas PK07, PK06, and PK01. Existing parking areas within the EFZ that would be retained include PK510B, PK610, PK370A, and PK370B; PK 510B and PK610 would be expanded.
- Industrial Land Use Category: buildings P019, P031, and P018, and parking areas MPK19, MPK31 and PK18.
- Housing Land Use Category: buildings P013, P011, and P008, and parking area PK09.

Building locations have not been identified in the southern Cantonment. The EFZ, which contains three active faults, crosses the center of the southern Cantonment Area and occupies approximately half of the area to be exchanged.

The following areas have high to very high liquefaction potential:

- Industrial Land Use Category: There is an area of soil with very high liquefaction susceptibility to the northwest of building P20.
- Open Space Land Use Category: There are three areas of soil with very high liquefaction susceptibility along the western boundary of Camp Parks in this proposed Open Space area. These areas should be avoided for future development.

- DEPMEDS Land Use Category: The storage area is planned in an area of high liquefaction potential.

- DSRSD Land Use Category: The northern portion is in an area with high liquefaction susceptibility and the southern portion is in an area with very high liquefaction susceptibility.

- Training Area: The liquefaction susceptibility is medium in the west-central portion and there is a small zone of high liquefaction susceptibility along the southern portion of the unnamed canal that drains from the Chabot Canal. However, there are no new buildings proposed for this area

In the Southern Cantonment Land Exchange Area, the soils in the southern two thirds are classified as medium liquefaction susceptibility. Therefore, building construction design might need to be altered or mitigated to ensure that soils do not move and damage structures or roads.

The structures and roads to be built on the eastern and western portions of the northern Cantonment Area would be placed on soils with low liquefaction potential. Structures and roads to be built in the center of the Cantonment Area would be built on bedrock, which has a very low liquefaction potential. There are no expected impacts from liquefaction in the Training Area under the Proposed Action, as there are no structures or roads planned for this area.

Only the Training Area has notable landslide concern areas. There has been a substantial amount of mass movement activity in the northern half of the Training Area, however, no new structures are proposed in this area. The northern and southern Cantonment Areas are classified as "least susceptible," and no mass movement activities have been identified in these areas.

Construction in the Cantonment Area as described in the alternatives may adversely affect future mineral development or exploration of the paleontological resources at Camp Parks; however, no mineral (sand and gravel) or paleontological resources have been identified on site. Any impacts that mineral deposits may have on the development to take place under the alternatives has been accounted for in the discussion of impacts associated with topography and geology.

4.2.2.2 Comparison of Other Alternatives

The above discussion of potential impacts assumes that the Proposed Action for development of the Cantonment Area is selected. The same potential impacts to buildings, parking lots, and roads would be expected if the Slow Growth Alternative were selected. Some of these potential impacts may be avoided if the No Action Alternative is selected. Fewer facilities would be constructed under this alternative, and their siting would not be constrained by land use considerations.

In the Training Area, the potential impacts described above for the DSRSD Land Use Category would only occur under the Proposed Action or the Slow Growth Alternative because the DSRSD facility would not be moved under the No Action Alternative. These potential impacts would not be significant if road and building designs considered the liquefaction susceptibility of the soils. The potential impacts to future development in the remaining portion of the Training Area are the same among all of the alternatives, since facilities in the Training Area would be replaced over time to support the ongoing mission, whether or not the Master Plan is implemented.

There would be no potential impacts to structures and roads built in the southern Cantonment Area from the active faults in the Calaveras Fault EFZ or the liquefaction susceptibility of the soils under the Slow Growth because there would be no development planned; therefore, the conditions would stay the same as they currently are until a future opportunity was identified and addressed. Under the No Action Alternative, decisions on development in the southern Cantonment Area would be made ad hoc, and any construction that occurred in this area would lack adherence to a common vision, requiring repeated review and analysis of each building individually.

4.2.3 Proposed Mitigation

Mitigation would be required where impacts to structures for human occupancy are anticipated due to an active fault. The developer must conduct a geotechnical investigation to determine if the active fault trace crosses the proposed building site. The minimum safety standard requires that the mitigation should reduce the risk of ground failure during an earthquake to a level that does not cause collapse of the building, but not in most cases, to a level where the building would sustain no damage. This generally requires the developer to move the building 50 feet from the identified fault trace (Alquist-Priolo Earthquake Fault Zone Act 1973).

No mitigation is necessary for the minimal potential for liquefaction of soils or landslides.

4.3 HYDROLOGY

The hydrology at Camp Parks includes both surface water and ground water resources, which are discussed separately below. When analyzing the potential impacts to surface water and groundwater as a result of the Proposed Action, it was assumed that neither type of water is or would be used as a drinking water source.

The following assumptions were made when analyzing impacts to hydrology:

- Surface disturbances could result in accelerated erosion and runoff, which could increase sediment loads to wetland areas and thereby affect wetland function.

- Activities that introduce fill or dredged material to wetlands would result in a loss of wetland habitat or wetland function.

- Construction project footprints would cause a permanent loss of vegetation.
- Measures employed to mitigate impacts to vegetation and wetland resources would be appropriate and successful.

4.3.1 Surface Water Hydrology

The potential impacts of the surface water hydrology under the Proposed Action, as well as the potential impacts of the Proposed Action on the site hydrology were evaluated for each land use category. Section 4.3.1.1 discusses the types of impacts that may occur. Section 4.3.1.2 discusses the expected occurrence of these impact. This discussion focuses on the Proposed Action and compares the other alternatives to it. Subsection 4.3.1.3 discusses mitigation of the potential impacts from the Proposed Action and its alternatives.

The ROI for surface water includes the Arroyo de la Laguna drainage basin of the Alameda Creek Watershed. For the purposes of this analysis, an action would result in a significant impact if any of the following situations occurs:

- Surface water quality in creeks, canals, and their receiving waters is degraded as a result of increased urban or construction-site storm water pollutant loadings such that the water fails to meet federal or state quality standards.
- Surface water quality in creeks, canals, and their receiving waters is degraded as a result of chemical or fuel spills such that the water fails to meet federal or state quality standards.
- The site hydrology is changed substantially, resulting in an increased potential for flooding along creeks, canals, or storm drains at Camp Parks and loss of human life or substantial property damage.

4.3.1.1 Impact Types

The following assesses the potential for pollution of surface water bodies resulting from urban or construction-site storm water pollutants; pollution of surface water bodies due to spills of chemicals or fuel; and the potential for increased flooding due to an increase in the impervious area contributing storm water runoff to the storm water drainage system. Urban and construction-site storm water runoff are major sources of pollution that can adversely affect receiving water bodies and groundwater recharged by this polluted runoff. During dry periods, pollutants such as inorganic chemicals and minerals (e.g., metals, salts); oil and grease from parking areas and roads; synthetic organic chemicals (e.g., detergents); oxygen-demanding and disease-causing wastes (e.g., animal waste); fertilizers; pesticides; and sediment, concrete wash-out, vehicle maintenance fluids, and other materials from construction sites accumulate on the land surface. These pollutants are washed off surfaces and conveyed directly to streams through ditches, canals, and storm drains. The majority of these urban and construction-site pollutants are contained within the “first flush” flow, which is usually the first half-inch of runoff. These smaller

flows have a disproportionately higher concentration of pollutants than larger flows. These higher concentration pulses can occur several times a year.

The construction of the new structures has the potential to impact local surface water bodies by increasing the sediment load, turbidity, and pollutant load (e.g., chemicals and fuels) of storm water entering local surface water bodies. The severity of construction-related effects on water quality depends on the soil erosion potential and construction factors such as amount of disturbed area, site slope, and duration of disturbance; frequency, magnitude, and duration of precipitation events; and proximity to stream channels.

Development may result in the use and temporary storage of more chemicals and fuels and an increased potential for spills that may reach surface water. Proper use, storage, and disposal of chemicals and fuels can prevent spills or reduce their severity.

With development, there is often an increase in the amount of impervious area at a site and a corresponding increase in the volume of storm water runoff. This increased volume of storm water runoff can result in localized flooding. The potential for increased flooding due to increased impervious area is greatest in the Cantonment Area, where most of the development would take place.

4.3.1.2 Impact Occurrence

4.3.1.2.1 Impacts Anticipated Under the Proposed Action

The potential for construction-site and urban storm water impacts to surface water are limited in the Training Area, as the only new development under the Proposed Action is the DSRSD. The potential for surface water (flooding) to impact the structures and roads built under the Proposed Action is greatest in the area of the 100-year floodplain of the Chabot Canal in the southern Cantonment Area. Although existing buildings located within the 100-year floodplain have not been damaged by previous flooding—even during severe storms—there is a potential that flooding could occur after additional development is completed.

Under the Proposed Action, several buildings and associated roads and parking areas would be in or adjacent to surface water drainages in the northern Cantonment Area; however, no buildings or parking lots would be constructed within the 100-year floodplain of the Chabot Canal. A proposed road would be placed down the center of the 100-year floodplain area, which is quite narrow (approximately 450 feet) in the northern Cantonment Area. Potential changes to flooding associated with specific structures and roads are discussed below. In the Southern Cantonment, exact locations of future private development have not yet been determined.

The following proposed building sites could change flooding in the area of the 100-year floodplain:

- Operations Land Use Category: Building P002; and the potential for flooding may be increased after P001 and P002 and their parking areas are constructed, due to the increased impervious area.

- Southern Cantonment: Any buildings constructed within the 100 year flood plain.

- Potential for flooding in the remaining areas is low.

Surface water runoff from construction and future use, and the potential for future spills of urban pollutants, could impact the following areas:

- Operations Land Use Category: small drainages on the eastern and western side of the area could be affected by buildings P024, P025, P026, P028, and their associated roads and parking areas on the western side and buildings P001 and P002 and their associated parking areas and roads on the eastern side.

- Industrial Land Use Category: proposed buildings P031, P018, P017 and their associated parking areas and roads could impact the water quality of the western drainage.

- Housing Land Use Category: proposed buildings P010, P011, and P012, parking area PK10, and the associated roads could impact the water quality of the western drainage.

- Open Space Land Use Category: demolition of buildings near drainages.

- Southern Cantonment Area:. During construction, there is a potential for drainages (Appendix B, Figure 3-5 and Figure 4-1) to be impacted by contaminated storm water runoff. Once the development is complete, drainages may be impacted by increased urban storm water runoff.

- These impacts could be reduced or eliminated with implementation of appropriate storm water BMPs.

- The remaining areas have no surface drainages that would be affected by construction or future run-off. However, construction-site storm water BMPs are still required at this site if the disturbed area exceeds one acre.

4.3.1.2.2 Comparison of Other Alternatives

The above discussion assumes that the Proposed Action for redevelopment of the northern Cantonment Area is selected. The same potential impacts to the surface water drainages would be expected if the Slow Growth or No Action Alternative were selected; however, the impacts to surface water due to urban storm water runoff and spills of chemicals and fuels would be less likely to occur because there would be substantially less development than under the Proposed Action. Flooding would also be less likely to occur under the Slow Growth and No Action Alternatives because there would be less

development and, therefore, less impervious area. However, under the No Action Alternative, these facilities would be the result of later unplanned and unpredictable development, thus they might have a disproportionately high impact on surface water hydrology.

Since there is no identified drainage in the DSRSD Land Use Category, there is no potential to impact surface water at this site under the Proposed Action or Slow Growth Alternative. The DSRSD facility would not be moved under the No Action Alternative.

There would be no development planned in the southern Cantonment Area under the Slow Growth Alternative; therefore, the conditions would stay the same as they currently are. Under the No Action Alternative, decisions on development in the southern Cantonment Area would be made ad hoc, and any construction that occurred in this area would lack adherence to a common vision.

4.3.1.3 Proposed Mitigation

Potential impacts can be reduced by following best management practices (BMPs) for controlling storm water quality. Implementation of BMPs to control storm water quality are required by the Clean Water Act under National Pollutant Discharge Elimination System (NPDES) permit system. The State of California is authorized to oversee the NPDES program for USEPA in California and has delegated this authority to the San Francisco Bay Regional Water Quality Control Board (RWQCB). Impacts that occur as a result of construction activities within floodplains would be mitigated through compliance with Executive Order 11988, *Floodplain Management*.

Camp Parks is located within the geographic jurisdiction of the RWQCB Alameda Countywide Clean Water Program. As such redevelopment activities within the northern and southern Cantonment as well as the Dublin Crossing are proposed upstream of areas where hydromodification impacts are of concern due to factors such as bank instability, sensitive habitat, or restoration projects. In compliance with the standing orders of the RWQCB related to NPDES Permit No. CAS0029831, the Proposed Action is anticipated to meet the Program's Hydromodification Management (HM) Standard such that stormwater discharges from applicable new development and redevelopment projects at Camp Parks and Dublin Crossing shall be designed to incorporate appropriate measures to not cause an increase in the erosion potential of the receiving creek over the preproject (existing) condition. Such measures may incorporate site design/landscape characteristics which maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious land coverage (i.e., use hydrologic source controls) to the maximum extent practicable. Therefore no significant impacts to downstream water courses with regards to flood capacity or the potential flooding of adjoining properties is anticipated to result.

Other potential impacts to surface water—construction-site storm water pollution, urban storm water pollution, and spills of chemicals and fuels—would be controlled by following appropriate measures for control of storm water and proper use, storage, and disposal of chemicals and fuels. Project managers of construction sites that disturb

greater than one acre (and sites that are smaller than one acre but are part of a larger plan of development) must apply for coverage under the NPDES General Permit for Storm Qater Discharges Associated with Construction Activity (General Construction Permit) by preparing a Storm Water Pollution Prevention Plan (SWPPP) and submitting a Notice of Intent (NOI) to the California State Water Resources Control Board (SWRCB). The SWPPP must outline the erosion, sediment, and pollution control BMPs that the project manager or designated personnel will install, operate, maintain and inspect to ensure storm water runoff from the site does not impair local water bodies.[25] When each site-specific SWPPP is developed, it should consider the on-post and off-post drainage and water flow surrounding its area of purview. Proper installation and maintenance of the BMPs in each SWPPP should reduce or eliminate impacts to surface water.

The effects of urban storm water pollution would also be reduced or eliminated by using post-construction, public education, and public involvement storm water BMPs. Examples of post-construction BMPs include the use of vegetated filter strips along the edges of parking areas to filter storm water before it reaches the drainage or storm sewer or wet ponds, which collect storm water and treat it by allowing settling of sediment and removal of nutrients through algal uptake. Public education BMPs include providing handouts, posters, or presentations to community groups that discuss how common practices, such as fertilizing a lawn, disposing of used oil, properly storing chemicals and paints, and cleaning up pet waste, can improve the storm water runoff from their neighborhoods and help to keep their local water bodies clean. Public involvement BMPs include stenciling storm drains, cleaning up streams, and maintaining wetlands. Camp Parks activities can also cause potential urban/industrial impacts to surface water. These could be reduced by implementing good housekeeping BMPs and a chemical/fuel spill prevention plan, which includes use, storage, and disposal guidelines.

The impacts of flooding on the Proposed Action would be minimized by avoiding construction in the 100-year floodplain of the Chabot Canal whenever possible, providing adequate storm water drainage for the new development, and constructing new buildings located in the floodplain such that their first floors are at least one foot above the base flood elevation.

In keeping with the principles of pollution prevention in the installation's storm water pollution prevention plan (SWPPP; CSS 2003) and the requirements of the Construction general Permit, the developer would be responsible for preparing the Construction SWPPPs for each specific project and the Camp Parks Environmental Office would

[25] *"Construction activity includes, but is not limited to: clearing, grading, demolition, excavation, construction of new structures, and reconstruction of existing facilities involving removal and replacement that results in soil disturbance. This includes construction access roads, staging areas, storage areas, stockpiles, and any off-site areas which receive run-off from the construction project such as discharge points into a receiving water. Construction activity does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility." (SWRCB 2005)*

review all associated documents. The SWPPPs would prescribe BMPs and compliance monitoring to control erosion and contaminated runoff from construction sites. They would be in addition to the BMPs defined for specific industrial activities in the current Camp Parks SWPPP. Examples of BMPs could include use of sediment trapping and filtering systems, bioswales, storm drain inlet protection, natural depressions, storm water detention or retention ponds, and sediment basins, in addition to the access restrictions and buffers discussed above. The following goals would be contained within the construction-site-specific SWPPPs to control storm water runoff during construction at Camp Parks:

- On-site capture and treatment of 100 percent of construction period runoff to prevent storm water pollution during this period.

- Specific long-term storm water control measures such as vegetated swales and storm drain inlet filters to capture and treat 80 to 90 percent of the site's estimated average annual runoff. The controls would be sized adequately to treat the site's anticipated storm water.

- Construction prescriptions would include setbacks from drainages and these setbacks would be vegetated to provide further stormwater control.

In addition, updates to the SWPPP address the changes that have occurred at Camp Parks since 2003. As done previously when the SWPPP was developed, each activity is reviewed as to its nature, its materials and processes, and its potential for storm water contamination before a comprehensive list of BMPs is tailored to individual building complexes. The BMPs include measures such as good housekeeping (e.g., preventive maintenance of oil-water separators), scheduling to minimize outdoor storage of materials, and effective use of dry sweep and drip pans, as well as selected use of pavement, small berms, or secondary containment structures where needed. Under the Master Plan more landscaped areas may be installed. Maintenance of such areas would employ the following prescriptions within the SWPPP:

- Avoid discharge into nearby drainages of any water used to irrigate ornamental plants because this water likely contains chloramine (a residual disinfectant), which could have a significant negative impact on aquatic life.

- Control runoff from areas that are landscaped and fertilized.

All post construction facilities within Camp Parks boundaries will be incorporated into the Camp Parks SWPPP and permit coverage for Industrial Storm Water Discharges. Any development occurring in Dublin Crossing will obtain its own coverage as needed. Mitigation through the implementation of the Camp Parks SWPPP would prevent significant impacts.

4.3.2 Groundwater

The potential impacts of the Proposed Action on groundwater hydrology and of the groundwater hydrology on the Proposed Action were evaluated for each area of Camp Parks. The types of impacts that may occur when buildings and roads are constructed are in Section 4.3.2.1. The expected occurrence of these impacts are discussed in Section 4.3.2.2. This discussion focuses on the Proposed Action and compares the other alternatives to it. Mitigation of the potential impacts is discussed in Section 4.3.2.3. Specific areas of groundwater contamination are discussed in Section 4.13.2.

The ROI for groundwater includes the Dublin and Camp Subbasins within the Livermore Valley Groundwater Basin. For the purposes of this analysis, an action would result in a significant impact if any of the following situations occurs.

- Groundwater quality is degraded as a result of infiltration of contaminated storm water or surface water such that the water fails to meet federal or state water quality standards.

- Groundwater quality is degraded by chemicals or fuel from a spill or leaking underground/aboveground storage tanks such that the water fails to meet federal or state water quality standards.

- Migration of volatile constituents from contaminated groundwater currently present at Camp Parks into newly constructed buildings where it could pose a health risk to residents and workers at the site.

4.3.2.1 Impact Types

The following assesses the potential for degradation of groundwater quality resulting from infiltration of contaminated urban or construction-site storm water runoff, spills of chemicals or fuel, or chemicals or fuel released from leaking underground/aboveground storage tanks.

Urban and construction-site storm water runoff that recharges shallow groundwater or aquifers can be major sources of pollution to groundwater. The severity of the impact would depend upon the types of pollutants that are picked up by the storm water. Common urban storm water pollutants are fertilizers, used oil, solvents, organic matter, and pet waste. Effective construction-site storm water BMPs can reduce or eliminate construction-site contaminants from the storm water that recharges the aquifer. Proper use, storage, and disposal of common urban storm water pollutants can reduce or eliminate these sources of storm water and groundwater, contamination.

Development may result in the use and temporary storage of more chemicals and fuels and an increased potential for spills or leaks from underground/aboveground storage tanks to reach groundwater. Proper use, storage, and disposal of chemicals and fuels can prevent spills or reduce their severity. Proper installation and monitoring of

underground/aboveground storage tanks can identify a leak before it causes substantial groundwater and/or soil contamination.

Camp Parks has identified several areas where groundwater is contaminated with VOCs. If shallow ground water contained high levels of VOCs, these compounds could volatilize, move through the unsaturated soil, and possibly enter the buildings. The areas of identified groundwater contamination and the buildings that may be affected by this volatilization are discussed in Section 4.13.2.

4.3.2.2 Impact Occurrence

4.3.2.2.1 Impacts Anticipated Under the Proposed Action

Groundwater has the potential to be impacted by storm water runoff from construction sites anywhere at Camp Parks where construction takes place; however, the potential for impacts to groundwater is greatest in the Cantonment Area (northern and southern), where most of the development would take place under the Proposed Action. The potential for chemical/fuel spills and leaks to impact groundwater is greatest in the Cantonment Area, since this is where most of the industrial activities would occur under the Proposed Action. The potential for impacts to groundwater from construction-site and urban storm water or chemical/fuel spills and leaks is limited in the Training Area, as the only new development under the Proposed Action would be new facilities in the DSRSD area and replacement of existing facilities at their current locations.

4.3.2.2.2 Comparison of Other Alternatives

The above discussion assumes that the Proposed Action is selected. The same potential impacts to groundwater would be expected if the Slow Growth or No Action were selected; however, the impacts to groundwater due to recharge of contaminated storm water runoff and spills of chemicals and fuels would be less likely to occur because there would be substantially less development than under the Proposed Action. There would be no impacts to the DSRSD Land Use Category under the No Action Alternative because this area would not be developed, although overall impacts from the No Action Alternative might be disproportionately high because of the later unplanned and unpredictable development that is likely under this alternative.

4.3.2.3 Proposed Mitigation

Both of the potential causes of impacts to groundwater—contaminated storm water runoff and chemical/fuel spills/leaks—could be mitigated by the following appropriate measures for control of storm water and proper use, storage, and disposal of chemicals and fuels. The mitigation measures discussed for potential surface water impacts from these sources of contamination (discussed in Section 4.3.1.3) would also be applied as appropriate to mitigate the potential impacts to groundwater from these sources.

4.4 SOILS

The potential impacts of the Proposed Action on the surface soils, as well as the potential impacts of the surface soils on the Proposed Action, were evaluated for each land use category. Section 4.4.1 discusses the types of impacts that may occur when buildings and roads are constructed on the different areas of Camp Parks. Section 4.4.2 discusses the expected occurrence of these impacts geographically. This discussion focuses on the Proposed Action and compares the other alternatives to it. Section 4.4.3 discusses mitigation of the potential impacts to the soils from the Proposed Action and its alternatives, as well as mitigation of impacts to the Proposed Action and its alternatives from the soils.

The ROI for soils includes any area disturbed within the Camp Parks boundary. For the purposes of this analysis, an action would result in a significant impact if any of the following situations occur.

- Activities at Camp Parks cause substantial erosion of the soil.
- Soils at Camp Parks are degraded as a result of contamination from spills of chemicals or fuels that require remediation.
- Soil properties, such as shrinking, swelling, or corrosivity, cause substantial damage to a structure or road.

4.4.1 Impact Types

The following assesses the potential for increased erosion, soil properties that may adversely affect future development, and contamination of soils by chemical/fuel spills or urban storm water runoff.

Development could result in the disturbance of large areas of soil that may be eroded if effective storm water BMPs are not implemented. If the topsoil is eroded, revegetation after construction would be difficult and continued erosion may damage roads or other structures. Sediments resulting from erosion could also be washed into wetlands and local surface water bodies during storm events and impair the water quality.

As shown on Appendix A, Table 3-4 and Table 3-5, some soil mapping units at Camp Parks have soil properties that are not desirable for development. These have low strength, high shrink/swell potential, and high corrosivity. If structures are built on soils with low strength or high shrink/swell potential, the pavement or building foundations may crack due to differential settlement. These soil properties can be ameliorated to some extent through modified building practices.

Development may result in the use and storage of more chemicals and fuels and a greater potential for spills or leaks from underground/aboveground storage tanks to contaminate site soils. Proper use, storage, and disposal of chemicals and fuels can prevent spills or reduce the degree of contamination resulting from the spill. Proper installation and

monitoring of underground/aboveground storage tanks can identify a leak before it causes substantial soil contamination.

4.4.2 Impact Occurrence

4.4.2.1 Impacts Anticipated Under the Proposed Action

Based on the soil mapping units, the erosion hazard of soils at Camp Parks is slight to moderate across the site (Appendix A, Table 3-4 and Table 3-5; Appendix B, Figure 3-6). Disturbing soil during construction can cause erosion; this eroded sediment can then be transported to surface water bodies and wetlands by storm water runoff. Phasing construction to reduce the amount of disturbed area and implementing effective storm water BMPs should be adequate to reduce or eliminate the potential impacts to soil. The shrink/swell potential of soils in the Cantonment Areas and DSRSD and DEPMED sites in the Training Area is moderate to severe (Appendix A, Table 3-4 and Table 3-5; Appendix B, Figure 3-6). High shrink swell potential places moderate limitations on the construction of roads and severe to high limitations on construction of buildings. If the soil shrink/swell potential is considered during design and construction, the impact to pavement and structures should not be significant. Structures to be placed on such soils are generally designed so that the impacts to the structures are minimal.

The same potential impacts discussed in the surface water hydrology section (Section 4.3.1) due to the increased development could also impact soils with contamination from increased urban storm water runoff or spills and leaks of chemicals/fuels. These potential impacts would not be significant if appropriate storm water BMPs are implemented and chemicals/fuels are used, stored, and disposed of properly.

4.4.2.2 Comparison of Other Alternatives

In the northern Cantonment Area, the impacts to soils from erosion during construction would be greatest under the Proposed Action because the structures and roads would be constructed during a shorter timeframe—resulting in more disturbed area at one time. Under the Slow Growth Alternative construction would be spread over a longer time period, which would likely result in less erosion. Under the No Action Alternative, the potential for impacts to soils is less because all of the development planned for the Proposed Action may not occur. Potential impacts to soils from increased urban storm water runoff would be the same under the Proposed Action and the Slow Growth Alternative, but would likely be somewhat less under the No Action Alternative since there would be less development, but it would be haphazard and lacking a plan.

Impacts to soils from spills and leaks of chemicals/fuels would be similar under the Proposed Action and Slow Growth Alternative; however, the potential for impacts would occur sooner under the Proposed Action, since the area would be fully developed sooner. There would likely be less potential for spills and leaks to impact soils under the No Action Alternative, as much of the development would not occur. Potential impacts to the structures and roads from soil conditions would be the same under the Proposed Action and its alternatives, although the Slow Growth and No Action Alternatives allow

more opportunity for building locations to be modified to avoid soils with high shrink/swell potential.

In the Training Area, the DSRSD facility would be moved under both the Proposed Action and the Slow Growth Alternative; therefore, the potential impacts discussed above apply to both plans. These potential impacts would not be significant if proper design and construction procedures were used and the facility properly used, stored, and disposed of chemicals and fuels. There would be no potential impacts to this land use category under the No Action Alternative, as the DSRSD facility would remain in its current location.

There would be no immediate development plans in the southern Cantonment Area under the Slow Growth Alternative; therefore, the conditions would stay the same as they currently are. Under the No Action Alternative decisions regarding any development in the southern Cantonment Area would be made ad hoc and any construction that occurred in this area would lack adherence to a common vision.

4.4.3 Proposed Mitigation

Each of the potential impacts to soil—erosion due to site disturbance during construction, urban storm water pollution, and spills of chemicals and fuels—could be mitigated by following appropriate measures for storm water control and proper use, storage, and disposal of chemicals and fuels. Construction sites that disturb greater than one acre, or are smaller than one acre but are part of a larger plan of development, must obtain an NPDES General Permit for Storm Water Discharges Associated with Construction Activity from the SWRCB prior to initiating construction activities. The site operator must file a NOI to discharge storm water with the SWRCB and develop a Storm Water Pollution Prevention Plan that outlines the erosion and sediment control BMPs the operator would install, operate, maintain, and inspect to ensure that storm water runoff does not erode the site soils and carry them into local water bodies. Proper installation and maintenance of these BMPs should reduce or eliminate impacts to surface water.

4.5 VEGETATION, INCLUDING SPECIAL-STATUS PLANTS, AND WETLANDS

To evaluate impacts on vegetation and wetland resources, the designated Land Use Categories (Appendix B, Figure 2-1) and the type, level, and location of construction under the Proposed Action and the alternatives were compared to the extent of the existing habitats that could be affected and to the known and potential locations of special-status species. The results of this comparison are presented below in three sections. Section 4.5.1 discusses the types of impacts that may occur to vegetation, including special-status plants and wetlands. Section 4.5.2 discusses the expected occurrence of these impacts geographically. This discussion focuses on the Proposed Action and compares the other alternatives to it. Section 4.5.3 presents mitigation measures that are proposed as integral to implementation of each alternative.

The discussion of impacts is based on resources observed at Camp Parks during survey efforts. It is recognized that special status vegetation species with the potential to occur at Camp Parks could also be impacted by the proposed activities.

The ROI for vegetation and wetland resources includes the entire area within the Camp Parks boundary. Depending on the relative topography of areas within and outside of the Camp Parks boundary, the ROI of vegetation and wetland resources could also extend beyond the Camp Parks boundary to areas that are down-drainage and hydrologically connected to areas within the boundary.

Adverse impacts to vegetation or wetland resources would be considered significant if they result in:

- The new listing of a species as special-status, or jeopardizing the viability of currently designated special-status species;
- Uncontrollable invasion and establishment of noxious weedy or invasive species;
- Substantial loss of important natural communities (e.g., wetlands and riparian habitats);
- A net loss of jurisdictional wetlands or wetland function.

Beneficial impacts to vegetation or wetland resources would occur if project actions result in special-status species or in total habitat available. The management of undeveloped Camp Parks lands to encourage particular plant species or wetlands could also result in beneficial impacts. The degree to which such beneficial impacts are significant would depend on their magnitude relative to the needs of special status species.

The following assumptions were made when analyzing impacts to vegetation and wetland resources:

- Surface disturbances could result in accelerated erosion and runoff, which could increase sediment loads to wetland areas and thereby affect wetland function.
- Activities that introduce fill or dredged material to wetlands would result in a loss of wetland habitat or wetland function.
- Construction project footprints would cause a permanent loss of vegetation.
- Measures employed to mitigate impacts to vegetation and wetland resources would be appropriate and successful.

4.5.1 Impact Types

The following assesses the potential for loss of special status plant species, degradation of natural habitats, or conversion of natural habitats to development. Such impacts can

occur from construction of new facilities and from increased human activity, and can affect construction footprints as well as adjacent areas. Wetlands can be degraded by removing wetland vegetation, disturbing soils, or altering hydrological conditions. Affecting any of these wetland attributes can result in a loss of wetland function.

Direct impacts that result in conversion of natural habitats to development are permanent. Direct impacts to vegetation communities occurring adjacent to the project footprint can be temporary if reclamation efforts restored affected plant communities. Grassland areas and wetland vegetation can typically be reclaimed in three to five years under normal weather conditions and with no additional impacts. Riparian areas typically take longer.

Increased runoff and erosion can impact vegetation communities and wetlands by increasing or decreasing water availability, sediments or nutrients, or by mobilizing nearby chemicals. Increased sediment and nutrient loads in wetlands can increase turbidity, degrade water quality and wetland habitat, and affect primary production.

Impacts set in motion by construction activities, such as the presence of excessive sediment, persist for a few years until they are filtered out of the ecological system by natural processes. However, permanent development of impenetrable surfaces (e.g., structures, roads, parking lots, walkways) results in permanent increased surface runoff from the developed area. Adequate stormwater runoff facilities reduces these impacts.

4.5.2 Impact Occurrence

4.5.2.1 Impacts Anticipated Under the Proposed Action

It is likely that the entire Cantonment Area would be disturbed by construction and demolition activities that would be widespread in the northern Cantonment Area due to Master Plan implementation and in the southern Cantonment Area due to the development of Dublin Crossing. Such disturbance would preclude expansion of rare species populations within the developed areas.

The discussion below compares land use categories (Appendix B, Figure 2-1) and proposed facility sites (Appendix B, Figure 2-2) to vegetation communities (Appendix B, Figure 3-7), wetlands (Appendix B, Figure 3-8), and special status plant species (Appendix B, Figure 3-9). Appendix B, Figure 2-1 and Figure 2-2 provide information that enables comparison of existing and future land uses at Camp Parks.

Net overall habitat changes, from implementation of the Proposed Action include the loss of 297.6 acres of (80% ruderal) non-native grassland and modification of 3.6 acres of wetlands. Of this, approximately 94 acres are footprints of development sites, with the remainder affected by construction activity, proximity to future development, and future human activities. Approximately 295 acres of the 1,200 acres (25%) of suitable Congdon's tarplant habitat would be converted to development. At Congdon's tarplant locations mapped in 2003, approximately 9 acres of the 15 acres (60%) would be adversely affected or converted to development; additional areas in the Training Area

have not been mapped and would not likely be significantly affected beyond current levels.

Construction of new activity sites, such as designated bivouac sites, would directly impact grassland habitat at the current trend of approximately one acre per year. Non-designated bivouac sites would temporarily impact grassland habitat at the current trend of 100 acres per year. Existing facilities would be replaced through time primarily in their same locations, with up to five acres of non-native grassland affected by minor locational or configuration adjustments.

Known, occupied Congdon's tarplant areas would be affected and several areas potentially lost.

- Operations Land Use Category: two small areas would be affected and potentially lost during construction of buildings P005, P001, P006, and an associated road. The plants occur immediately outside the construction project footprints. Increased human activity in the vicinity of the proposed structures could also result in direct impacts through trampling and direct removal of individual plants.

- Industrial Land Use Category: two small areas would be affected and likely lost during construction of parking MK19, and building P020 and parking MPK20.

- DEPMEDS: a moderate sized area that lies adjacent to a roadside may be affected by development and road use.

- DSRSD: would not be affected by facility replacement, and may be minimally affected by continued military training and minor increases in the intensity of training.

- Training Area: several sites may be minimally affected by continued military training and minor increases in the intensity of training.

- Southern Cantonment Area: all Congdon's tarplant (approximately 8.4 acres) would be presumed lost due to conversion to developed status.

Some Congdon's tarplant areas may remain unaffected in the Cantonment area in the Operations and Industrial Land Use Categories. Potential habitat for Congdon's tarplant on Camp Parks would be lost in the southern and northern Cantonment areas, and remain suitable in the Training Area. The adverse impact to the tarplant areas would not likely result in significant loss to the population or federal or state listing of the species, thus the impact would not be significant.

Wetlands would be affected in the Cantonment from habitat conversion to developed status, as well as from adjacent disturbance or development. Wetlands affected include #27, 28, 32, 33, 34, 35, 40, and 47, all of which are jurisdictional.

- Operations Land Use Category: Part of wetland #47 would be affected by building P024, and part of Wetland #40 would be impacted by construction of Building P002 and associated parking areas PK01, PK02, MPK02,and connecting roadways.

- Industrial Land Use Category: Part of wetland #47 would be affected by building P018 and parking PK18.

- Housing Land Use Category: Part of Wetland #47 would be affected by buildings P010, P011, P012; in addition building P013 and parking PK10 would be directly east.

- Southern Cantonment Area: 2.5 acres of wetlands (Wetlands #28, 32, 33, 34, 35 and part of #40) would be lost to federal stewardship and presumed developed.

- Training Area: There would be no wetlands lost to development in the Training Area. Increases in training may increase the potential for ground disturbance at or near wetlands that occur in proximity to military training sites or activities (Wetlands #10, 11, 16, 19, and 50).

Wetland #27 is a small seasonal pond and seep; #28 is a set of vernal pools that have developed on fill material; #32, 33 and 34 are small ditches that lead to #40; #35 is a small ditch that leads to an off-post ditch; #40 is a larger ditch that collects drainage from much of the center of the installation and leads off-post to Chabot Canal; and #47 is a small ditch that is not clearly connected to the other drainages. None of these wetlands are known sites for special status plant or animal species. Jurisdictional wetlands are regulated under Section 404 of the Clean Water Act (40 CFR Parts 230–233). Without effective mitigation, construction activities could result in a net loss of jurisdictional wetland function, which if substantial, could become a significant impact. Since each ditch wetland drains areas around existing development, drainage would continue to require routing through ditches.

Riparian areas and Northern California black walnut sites may be affected due to minor increases in military training intensity in the Training Area. No riparian or walnut groves would be lost. Effects from proposed activities in the Training Area are likely to be similar to existing effects from training. Effects to palmate bracted bird's beak are not expected, as none were found during protocol level surveys conducted on Camp Parks.

The only vegetation/wetland resource located within the two open space polygons is Wetland #27, which is in the open space polygon that forms a buffer between the northern Cantonment Area and the Training Area. Long-term benefits could be expected to occur if this area continues to be used as "open space" and the wetland is left to develop naturally. The open space could also provide habitat to species that are displaced from construction activities in other areas of Camp Parks.

4.5.2.2 Comparison of Other Alternatives

In the Cantonment Area, the Slow Growth Alternative would have impacts similar to those identified for the Proposed Action, as the vision for Camp Parks under this alternative would be similar to that of the Proposed Action. Demolition of existing facilities would occur over time, as facilities gradually moved to the designated land use categories. However, the impacts would generally be less extensive because development would be staged, occurring over a much longer time period, which could enable Congdon's tarplant species to colonize new locations at Camp Parks to compensate for populations that were eradicated by the redevelopment. In addition, the land exchange involving Dublin Crossing would not occur, providing additional area for such colonization if appropriate habitat conditions were provided. Under the Slow Growth Alternative, impacts to wetlands would also be minimized, since most of the wetland loss under the Proposed Action (2.5 of 3. 6 acres or 70%) occurs with the development of Dublin Crossing in the southern Cantonment Area, which is not planned under the Slow Growth Alternative. However, the area would remain an opportunity site and be subject to future development planning.

The No Action Alternative could result in the lowest level of impact in the Cantonment Area because the level of change (e.g., surface disturbance) would be more gradual and might be less extensive. However, new facilities would be built in the southern Cantonment Area in time, and decisions regarding such development would be made on an ad hoc basis; any construction to occur in this area would lack adherence to a common vision. This would mean that facilities could be placed wherever convenient or most cost effective. The No Action Alternative would result in the lowest level of impact to vegetation and wetland resources because of the lower level of construction and human activities anticipated under this alternative. However, the impacts to wetlands might be higher than warranted from the level of new construction because of its haphazard nature. In addition, the land exchange involving Dublin Crossing would not occur, allowing for less dense development of the Cantonment Area.

Because development would be less extensive under the Slow Growth Alternative and the No Action Alternative, the intensity and duration of training activities would also likely be less. This would reduce the level of impact to vegetation and wetland resources in the Training Area. Nonetheless, under either of these alternatives, the siting of bivouac areas, kitchens, and medical sites in the vicinity of special-status plant populations and wetlands could negatively impact these resources. The No Action Alternative would result in the lowest level of impact because only limited development is anticipated under this alternative. The loss of Training Area grassland to the DSRSD relocation would also be avoided under the No Action Alternative.

4.5.3 Proposed Mitigation

4.5.3.1 Wetlands

Most of the wetlands delineated during the 2003 surveys (Appendix B, Figure 3-8) were designated as jurisdictional wetlands and regulated under Section 404 of the Clean Water

Act (40 CFR Parts 230–233). The Army will avoid undertaking any new construction in wetlands unless there is no practicable alternative to such construction, and the Proposed Action includes all practicable measures to minimize harm to wetlands that may result from such use. These limitations are required by Executive Order 11990. A specific finding will be made with respect to each federal action involving wetlands, in conjunction with the Clean Water Act permit process. If they cannot be avoided, then Section 404 and 401 permits may be needed for construction. The Army would coordinate with the USACE and RWQCB to obtain permits and develop mitigation plans prior to development. Section 4.6.3 addresses coordination with the USFWS regarding potential impacts to wetland and riparian forest communities used as fish and wildlife habitat. Mitigation measures could include, but would not be limited to, access limitations, use of buffer zones, implementation of formal SWPPP protocols, implementation of BMPs, and wetland enhancement. In addition, to minimize surface water run-off during operations and maintenance, vehicles and equipment would use existing roads and routes of travel to the greatest extent practicable. Vehicles traveling off road at night within 100 feet of a water body within the designated Habitat Management Units (HMUs) and Tassajara Creek are to maintain a speed of 10 miles per hour or less. The Army would also continue Integrated Training Area Management programs such as Land Rehabilitation and Maintenance, which repair damaged areas and minimize potential future damage. Known breeding ponds would be marked as "no-go" areas using Siebert stakes.

Camp Parks currently has a policy for military training activities that designates wetlands as "no digging," or "limited access." This policy is documented in the Integrated Natural Resource Management Plan (USACE 2003b) and stated during training briefings. These policies would remain in force for training activities under all alternatives. In addition, during construction, buffer zones would be established and marked where feasible around adjacent wetlands, drainages, and riparian forest within which no activity would be allowed. The buffer zones would be of sufficient width to prevent incursion into the protected area by equipment and workers, avoid construction runoff into the protected area, and prevent degradation of the wetland by providing long-term protection of the watershed in its immediate vicinity.

To further minimize potential impacts caused by surface water runoff, measures would be implemented to appropriately convey, capture, and treat storm water runoff as described in Section 4.3.1.3.

4.6 FISH AND WILDLIFE

To evaluate impacts on fish and wildlife resources, the designated Land Use Categories and the type and level of activities for the Proposed Action and alternatives were compared to the extent of Camp Parks habitats where these species are expected to occur and to the known and potential locations of special-status species and their habitat. Activities during both construction and operation of new facilities were addressed. Section 4.6.1 discusses the types of impacts that may occur to fish and wildlife. Section 4.6.2 discusses the expected occurrence of potential impacts of the Proposed Action and a

comparative discussion of impacts of the Slow Growth Alternative and No Action Alternative is provided. Section 4.6.3 presents the results of the Section 7 consultation process. Section 4.6.4 provides a discussion of conservation measures that are proposed.

The Army prepared and submitted a Biological Assessment in May 2006 requesting formal consultation under Section 7 of the Endangered Species Act with the USFWS for federally listed species with the potential to occur within the 483 acre cantonment area and 1,995 acres of the range complex and field training areas. The USFWS issued a Biological Opinion in December 2006 that included species-specific determinations, reasonable and prudent measures, and terms and conditions. A summary of these findings are provided in Section 4.6.3.

The ROI for fish and wildlife includes the entire area within the Camp Parks boundary for most species. For wide-ranging species, the ROI may extend beyond that boundary since Camp Parks may provide important breeding or foraging areas for species also supported by habitat beyond Camp Parks.

Adverse impacts on fish and wildlife would be considered significant if they would:

- Jeopardize the viability of threatened or endangered species' populations;
- Result in the need to list a particular species as a special-status species;
- Cause a loss of function or value in threatened or endangered species' habitat;
- Result in a substantial loss of regional populations of special-status species or their habitat.

The degree of impact and determination of impact significance would depend on the level of surface disturbance associated with facility development at Camp Parks, the sensitivity of fish and wildlife species to that development, the amount of disturbance from human activity in the vicinity of areas used for important activities such as breeding, the importance of the affected resource, the duration of development activities, and the proportion of the resource that would be affected relative to its occurrence within Camp Parks and its overall population status.

Beneficial impacts to fish and wildlife would occur if project actions result in an increase in the Camp Parks population of special-status species or an increase in the total potential habitat available at the project site. The management of undeveloped Camp Parks lands to encourage particular fish and wildlife species could result in beneficial impacts.

The degree to which such beneficial impacts were significant would depend on their magnitude relative to the population status and habitat needs of the fish and wildlife species. The evaluation of significance for both adverse and beneficial impacts uses existing conditions as a benchmark.

Species located within project footprints are assumed to be permanently displaced or destroyed (depending on species' mobility) by surface disturbance associated with facility development. It is assumed that any substantial disturbance to the soils or change in vegetative composition that has an adverse effect on water quality of existing streams, vernal pools, or wetlands would adversely affect associated fish and wildlife species.

4.6.1 Impact Types

Displacement may move animals into less desirable habitat or where there is increased competition for resources. Habitat destruction results in a loss of habitat, and alteration changes the quality of habitat for wildlife. Habitat fragmentation occurs when a contiguous habitat is broken up (fragmented) by disturbing activities, causing a reduction in usable ranges, the isolation of smaller, less mobile species, the loss of genetic integrity within species or populations, and an increased abundance of habitat generalists that are characteristic of disturbed environments (i.e., competitors, predators, and parasites) (Harris 1988). Fragmentation can displace wide-ranging species that require large parcels of contiguous habitat.

Loss of fish and wildlife habitat, habitat fragmentation, and loss of forage or other important habitat components are long term impacts. Trampling and vegetation disturbance are short term and last until the habitat recovers following cessation of the activity.

Indirect impacts include displacement or disturbance of fish and wildlife, or reduced habitat quality, by human presence or noise related to construction, facility use, or training activities and from increased erosion, surface runoff, and sedimentation of water resources from soil compaction and vegetation removal during construction activities. Indirect impacts also include human activities that cause predators to be more effective or prey to be more susceptible to predation or other causes of mortality.

4.6.2 Impact Occurrence

Impacts on the fish and wildlife species that do not have special status are addressed only by discussion of impacts on their habitat in Section 4.5.2. Impacts on special-status species that have been observed on Camp Parks and on other threatened/endangered/proposed species that have a moderate to high potential of occurring at Camp Parks are discussed below.[26] Additional fish and wildlife species (Appendix A, Table 3-10) may be similarly affected.

There are 14 special-status species that are known to occur on Camp Parks. These include invertebrates (California linderiella fairy shrimp), amphibians and reptiles (California red-legged frog, California tiger salamander, and Western pond turtle), birds

[26] *An additional four federally listed crustaceans were not found in protocol surveys and are not further discussed.*

(Cooper's hawk, ferruginous hawk, golden eagle, loggerhead shrike, northern harrier, prairie falcon, tri-colored blackbird, western burrowing owl, and white-tailed kite), and a mammal (pallid bat). The California red-legged frog and the California tiger salamander are both listed as threatened. These species, and the San Joaquin kit fox, an endangered species that has a moderate to high potential for occurring at Camp Parks, are discussed below.

4.6.2.1 Impacts Anticipated Under the Proposed Action

Fish and wildlife species that use grasslands would be affected by the net loss of 297.6 acres of non-native and ruderal grassland habitat as described in Section 4.5.2. However, most of these species primarily frequent expansive, undeveloped areas and are unlikely to use the Cantonment Area as their primary foraging area. Individual loggerhead shrikes and burrowing owls are exceptions, and would lose important foraging and nesting habitat with implementation of the Proposed Action. Wetland areas that would be lost under the Proposed Action do not provide valuable habitat for special status wildlife.

- **Vernal pool shrimp**: No impacts to federally listed vernal pool shrimp are expected as none were found during protocol level surveys conducted on Camp Parks. None of the wetlands currently used by California linderiella would be directly impacted. Of the potential habitat sites, Wetland #28, in the southern Cantonment Area, would be lost under the Proposed Action. Impacts on the remaining sites could include increased soil erosion and runoff caused by restoration, construction, or maintenance activities near Wetland #27 in the northern Cantonment Area, or the congregation of soldiers and placement of heavy equipment in or near Wetlands # 5, 6, 8, 15, 19, 21, 22, and 24 in the Training Area. Direct adverse impacts to these wetlands are unlikely due to their distance from project activities.

- **California red-legged frog**: Known breeding sites would not be directly affected by implementation of the Master Plan as they are well beyond 2,000 feet from proposed activities in the Cantonment or Training Area. Because known breeding sites are upstream of proposed construction, sedimentation and soil runoff into breeding habitat would not occur. Potential upland habitat in the Cantonment would be lost; however, value of this habitat is not likely high due to distance from breeding habitat and existing development. Although activities in the Training Area are expected to increase with Master Plan implementation, potential adverse impacts to California red-legged frog, including to known breeding sites, are not expected to exceed the impacts of existing activities due to existing conservation measures that protect Training Area wetlands and HMUs. The likelihood of direct mortality is low as California red-legged frogs have not been sighted in or near proposed project sites.

- **California tiger salamander**: Known breeding sites would not be directly affected by implementation of the Master Plan as they are more than 1.3 miles from proposed activities. They are upstream of proposed construction, so sedimentation and soil runoff into breeding habitat would not occur. The majority

of suitable breeding and upland habitat for California tiger salamanders occurs in the Training Area. Although activities in the Training Area are expected to increase with Master Plan implementation, potential adverse impacts to California tiger salamander, including to known breeding sites, are not expected to exceed the impacts of existing activities. No potential breeding sites would be lost or directly affected under the proposed project. Potential upland habitat in the Cantonment would be lost; however, value of this habitat is not likely high due to distance from breeding habitat and existing development. Ground-squirrel control efforts would reduce the availability of ground-squirrel burrows as aestivation sites in the Cantonment. The likelihood of mortality from excavation, demolition, construction, and vehicle and equipment use is low based on known distribution of tiger salamanders on Camp Parks.

- **Western Pond Turtle:** Currently used ponds (Wetland # 1, Pond C, and likely Pond D) are all located in the Training Area, over 2,000 feet upstream from construction, restoration, and military activities in the Cantonment Area. The impacts of increased training activity are not expected to be greater than the impacts of existing activities in the Training Area.

- **Special-status Birds**: Implementation of the Master Plan would result in the loss of ruderal grassland habitat (Section 4.5.2) that could potentially be used for foraging by special-status birds. Nesting and foraging habitat for burrowing owl and loggerhead shrike would be lost in the Cantonment, and remain intact in the Training Area. There is one white-tailed kite and one red-tailed hawk nest in the northern Cantonment Area, and one red-tailed hawk nest in the southern Cantonment Area and in the Training Area. While the red-tailed hawk is not a special-status species, the nest sites could be used by other raptors. Individual nesting trees could be avoided. The impacts to raptors from increased activity in the Training Area are not expected to be greater than the impacts from existing activities.

- **Pallid Bat:** Pond D, the only known pond that is currently used, is located in the Training Area and over 2,500 feet upstream from construction, restoration, and military activities in the Cantonment Area. The impacts of increased training are not expected to be greater than the impacts of existing activities in the Training Area.

- **San Joaquin Kit Fox:** San Joaquin kit fox have not been observed on Camp Parks, and there is no evidence of Camp Parks use by this species, which reduces the potential for adverse impact on individuals. Take of San Joaquin kit foxes is extremely unlikely, given the rarity of sightings in the vicinity of Camp Parks. Potential kit fox habitat in the Cantonment would be converted from non-native or ruderal grassland to development. The 25 percent increase in Training Area activity is expected to result in impacts to grasslands and potential kit fox habitat that are similar to impacts of existing activities in the Training Area.

- **Western burrowing owl**: The Western burrowing owl would experience the most extensive direct effects from development activities within the northern Cantonment Area. During surveys in the Cantonment and southern Training Area prior to RCI housing development, over half of the burrow locations documented in 2003 occurred in the northern Cantonment Area. The burrow sites from 2003 are found within proposed facility sites (2 in building sites, 1 in a road, and 10 in parking lot sites), and adjacent to proposed facility sites (five are close to such sites).

The specific geography of the anticipated impacts to these special-status species under the Proposed Action is discussed below.

- Operations Land Use Category: Includes 9 burrowing owl burrows (identified in 2003), loggerhead shrikes observed, and one known white-tailed kite nest. Burrowing owl sites would be directly affected by construction of buildings P001, P006 and parking PK06 or indirectly affected by construction of buildings P002 and P014.

- Industrial Land Use Category: Includes one prairie falcon observation point, one loggerhead shrike observation point (likely powerlines or some sort of perch), and eight burrowing owl burrows (SE corner of polygon, identified in 2003). Seven 2003 burrowing owl sites would be directly affected by construction of buildings P015, P016, and parking PK14B. The loggerhead shrike perch is adjacent to proposed road construction.

- Housing Land Use Category: The area where RCI Housing was constructed was formerly used by burrowing owls and loggerhead shrikes. This area is largely developed now.

- Open Space Polygon: Includes a red-tailed hawk nest in the northern area. The western area contains no burrowing owl burrows, but was a foraging area in 2004 by banded burrowing owls.

- DEP-MED Land Use Category: Includes two burrowing owl burrows, one within proposed parking and the other burrow immediately adjacent to this lot.

- Training Area: Includes known locations for all special status wildlife. Of the 1,848 acres of non-native grassland in the Training Area, 63 acres (3%) would be converted to development. The remaining acreage is not expected to incur additional impacts from an increase in Training Area activity under the Master Plan beyond existing levels. During surveys that focused on the Cantonment and southern Training Area in 2003, approximately 30 percent of the burrowing owl burrows observed and approximately 30 percent of the loggerhead shrike observations were in the Training Area.

- Southern Cantonment Area: Contains eight burrowing owl burrows, three loggerhead shrike observation points, and a red-tailed hawk nest. It is assumed

that the entire site would be developed and all existing habitat removed, resulting in a net loss of 124 acres of ruderal grassland.

The majority of activity sites within the Training Area are pre-existing; therefore, minimal to no impacts are expected to occur to special-status species from these sites. Ongoing effects to Training Area grasslands are included in Section 4.5.2.

4.6.2.2 Comparison of Other Alternatives

The No Action Alternative would result is less overall impact to wildlife species because the facilities within the Cantonment Area would change slowly. The impacts of the Slow Growth Alternative would be as discussed above for the Proposed Action; however, impacts would not occur within the same timeframe due to possible funding constraints on facility improvements. This alternative would be less adverse to wildlife due to slower implementation of the Master Plan.

Additionally, the Slow Growth and No Action Alternatives would not include the exchange of the Dublin Crossing area, and therefore would not result in the level of impact as described above. However, some level of impact to wildlife resources would continue to occur, as this area would be viewed as an opportunity site and construction activities would eventually take place in this area as a result of projects not anticipated in this Master Plan. The No Action Alternative would result in the lowest level of net fish and wildlife habitat loss because of the lower level of construction and human activities anticipated under this alternative. However, the ad hoc and random nature of construction that might occur under this alternative could result in additional impacts.

4.6.3 Results of Section 7 Consultation

Section 7 of the Endangered Species Act requires Federal agencies to consult with the USFWS to ensure any action they authorize, fund, or carry out will not jeopardize Federal listed species. The Army prepared and submitted a Biological Assessment on May 6, 2006 requesting formal consultation under Section 7 of the Endangered Species Act with the USFWS for federally listed species. The USFWS determined in their December 2006 Biological Opinion that implementation of the Master Plan may have direct and indirect effects to kit foxes, red-legged frogs and tiger salamanders on the installation, including the 483 acre cantonment area and 1,995 acres of the range complex and field training areas as well as indirect impacts to areas outside the installation's boundaries.

The USFWS concluded that direct and indirect impacts to kit foxes, red-legged frogs and tiger salamanders on the installation would not likely jeopardize the continued existence of either species and provided an allowance for incidental take in the form of harm, harassment, or injury for each species as a result of habitat loss and modification, capture (frog and salamander), vehicle strike, soil remediation, construction-related disturbance, increased competition (fox only), increased predation (frog and salamander), human disturbance (fox only), and noise disturbance (USFWS 1-1-06-F-1752). Of the 329 acres of habitat however, 170.5 acres of direct effects and permanent loss of habitat in the

southern cantonment area were not evaluated in the December 2006 Biological Opinion. Instead, the USFWS required that the Army publish a Notice of Requirement in the Federal Register that the acceptance of any portion of the 170.5-acre land exchange property is conditioned on the developer engaging the Service in Section 7 or Section 10 consultation prior to the development of the land.

Even though the December 2006 Biological Opinion excluded 170.5 acres within the southern Cantonment (known as the Dublin Crossing exchange area), the May 2006 Biological Assessment prepared by the Army did include this 170.5-acre area and provided the basis for impact determinations presented in this EIS. A subsequent review of biological conditions on the 8.5 acre NASA parcel determined that the proposed action would have no effect on any special status species (NASA REFERENCE); therefore no further consultation with the USFWS regarding the NASA parcel would be required.

4.6.4 Proposed Mitigation Measures

Sections 4.3 and 4.5 provide mitigation discussions for wetland habitats. Existing protection measures are in place for Training Area wetlands to minimize the potential for disturbance in occupied special status wildlife aquatic or riparian habitat.

Habitat enhancement in the Training Area may be required for grassland areas. Creation, restoration, or enhancement of wetlands may also be required. Maintaining substantive areas with prey species and burrows is important for California tiger salamander and burrowing owls. On Camp Parks, control of domestic pets to avoid wildlife mortality and harassment is required.

To minimize the potential for ground-disturbing activities to increase erosion and sedimentation and disturb sensitive wildlife species, BMPs would be implemented. BMPs would include revision of the SWPPP prior to groundbreaking; measures to minimize or avoid vegetation removal during training; regular monitoring to identify and repair damaged or eroded areas; revegetation methods using appropriate assemblage of native plants; methods to prevent, stop, or repair erosion-related damage, such as proper placement of hay bales or erosion control fabric; prior to construction, an on-site construction personnel briefing on environmentally sensitive habitats and species and the specific conservation measures developed for each; containment and frequent disposal of garbage so as not to attract wildlife; and monitoring of construction activities by a biologist.

If a special status species was in danger of imminent harm during operations or construction, activities in the area would cease and the Camp Parks Environmental Office would be notified to determine if any action needed to be taken. The Army would notify USFWS within 24-hours of finding an injured or dead listed species, or any unanticipated damage to listed species habitat associated with project activities. Camp Parks would also submit any survey results to the CNDDB and include the information in the installation's annual INRMP update. In addition, the Camp Parks Environmental Office would maintain their ongoing coordination with the USFWS so that they are aware of any

changes in occurrence or status for species known or with moderate to high potential to occur at Camp Parks and conduct surveys at appropriate intervals.

To minimize impacts from construction, the following measures are proposed. Specific sites for vehicle parking, storage of construction supplies, etc. would be designated in previously disturbed locations that would minimize potential effects to federally listed species. Dust, erosion, and sedimentation would be controlled through use of Best Available Control Technology (BACT), for example, use of silt/wind fences, use of water or chemical stabilizers for dust control, covering of haul vehicles, and minimizing time graded areas are exposed. Best Management Practices would be implemented such as a 20-mph vehicle speed limit within the project area, covering or providing escape ramps for trenches greater than two feet deep, checking pipes or culverts that have a diameter over four inches before moving them, placing food-related trash in closed containers. Disturbed areas would be rapidly rehabilitated to minimize erosion and downstream flow of sediment. Well-maintained vehicles and defined refueling and maintenance locations would be used to minimize uncontained petroleum leaks. Work area boundaries would be minimized and defined for each construction site. Pre-construction briefings for construction crews would be conducted to review BMPs being implemented during construction. Existing roads and routes of travel would be used to the greatest extent practicable for vehicles and equipment. To minimize potential adverse effects caused by surface water runoff, measures would be implemented to appropriately convey, capture, and treat storm water runoff. Existing BMPs defined for specific industrial activities in the current Camp Parks SWPPP would also be implemented (CSS Environmental Services, Inc. 2003). Adjacent to development areas, wetland buffers would be established, marked, and protected.

4.6.4.1 Species-Specific Proposed Measures

California Red Legged Frog. Conduct pre-activity surveys of wetland habitat within 200-feet of the construction site in accordance with the field survey methodology outlined in the U.S. Fish and Wildlife Service Revised Guidance on Site Assessments and Field Surveys for California Red-legged Frogs, August 2005 (USFWS 1997). Surveys would typically consist of four night and two day surveys. If California red-legged frogs are observed within the project area and have the potential to be harmed, they would be relocated from the site to an area within one of the installation's HMUs. If they are known or suspected to occur near a construction or demolition site, install silt fences or another similar barrier around any adjacent wetlands that are within 200 feet of construction to separate them from the site and monitor as needed for these species during construction. The barrier would be inspected for integrity on a weekly basis during construction and repaired as needed.

California Tiger Salamander. Conduct pre-activity surveys consisting of two nights of burrow inspections within five days prior to the initiation of construction or ground disturbance activities. If California tiger salamanders were observed within the project area, they would be relocated from the site to a burrow near a known or potential breeding pond. If they are known or suspected to occur near a construction or demolition

site, install silt fences or another similar barrier around any adjacent wetlands that are within 200 feet of construction to separate them from the site and monitor as needed for these species during construction. The barrier would be inspected for integrity on a weekly basis during construction and repaired as needed.

Raptor Nests. Whenever possible, impacts to larger trees that occur in the Training Area riparian habitats or in the Cantonment Area would be avoided. Prior to construction or intensive training activity, a biologist would conduct site-specific surveys for active raptor nests in the area during the appropriate nesting period for these raptors (typically March through August). Surveys would either be conducted for each specific activity or annually across the post so that potentially disturbing activities would avoid or minimize activities around active nests within 1/8 mile (660 feet) between February 1 and August 15 during nesting. If a previously active nest is not occupied by May 15, the limit may be suspended for that breeding year.

Western Burrowing Owl. The mitigation goal for the burrowing owl is to compensate for the anticipated impact by replacing or providing substitute resources or environments elsewhere on Camp Parks according to recommended guidelines published in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (CADFG 1995). Before initiating ground-disturbing activities in grassland habitats, preconstruction surveys for burrowing owls would be conducted by a qualified biologist within 150 meters (approx. 500 ft.) of construction areas. Surveys would be conducted no more than 90 days before ground disturbance. If burrowing owls were found, the burrow site would be avoided, if possible, and given at least a 50 meter (approx. 160 ft.) buffer. If the burrow could not be avoided, the biologist would determine whether eggs or young were present in the nest. If eggs or young were present, no disturbance would occur within 50 meters of the nest site until the young had fledged. If no young were present or if young had fledged, burrowing owls would be passively relocated to other nearby areas of suitable habitat on Camp Parks.

Owls would be excluded from burrows in the immediate impact zone and within a 50 meter buffer zone by installing one-way doors in burrow entrances. One-way doors (e.g. modified dryer vents) should be left in place 48 hours to ensure owls have left the burrow before excavation. Two artificial burrows would be provided for each burrow in the project area that will be rendered biologically unsuitable. The project area would be monitored daily for one week to confirm owl use of burrows before excavating burrows in the immediate impact zone.s.

San Joaquin Kit Fox. Conduct surveys, establish exclusion zones, and conduct monitoring consistent with the USFWS "Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance," dated June 1999 (USFWS 1999b). Negative survey results would be reported as part of Camp Parks' INRMP annual update. If kit foxes were observed during surveys, then Camp Parks would contact USFWS to coordinate construction activities, in accordance with the Endangered Species Act.

4.6.5 Management Actions

Other Aquatic Species. As funds are available, Camp Parks would conduct surveys for sensitive vernal pool species and Western pond turtles every 5 years to keep the data on their occurrence current.

Other Mammals. As funds are available, Camp Parks will conduct surveys for pallid bats every 5 years to keep the data on their occurrence current.

4.7 CULTURAL

This section describes the potential impacts from the Proposed Action, Slow Growth, and No Action Alternatives to cultural resources at Camp Parks. The cultural impact analysis is based on the following assumptions:

- There is one National Register of Historic Places (NRHP) eligible property at Camp Parks, the Camp Parks front gate sign.
- There is one historic archeological property identified in the Training Area as potentially eligible for the NRHP.
- Depositional landforms within the last 12,000 years (the Holocene) have the greatest potential for containing buried resources.
- The layer of artificial fill material across the entire installation may contain prehistoric or modern archaeological material, but has been highly disturbed by activity and typically offers little archeological value.
- The largest potential for contact with buried cultural material is between the layer of fill, which varies in depth across the installation, and the underlying original surfaces.
- Once approved by the SHPO, recovery and curation of cultural resources by authorized specialists is not considered damage to or loss of cultural resources.

The ROI for cultural resources is contained within the current installation boundaries and includes the one NRHP eligible property and one historic archaeological site located on the installation. An impact on a historic property would occur if an action or activity alters the characteristics of the property that may qualify it for inclusion in the NRHP, including alteration of location, setting, or use. According to 36 CFR 800, Protection of Historic and Cultural Properties, any undertaking that may result in alteration to features of a property's location, setting, or use may constitute an impact such that its cultural significance is impaired. Adverse impacts can occur when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the NRHP are subjected to the following:

- Physical destruction or alteration of all or part of the property;

- Isolation of the property or alteration of the property's setting when that character contributes to the property's qualification for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- Neglect of a property, resulting in its deterioration or destruction; and
- Transfer, exchange, lease, or sale of the property.

Thus, impacts to the sensitive cultural resources identified in the affected cultural environment discussion in Section 3.7 could result from inundation, destruction, damage, and/or disruption that impairs their cultural significance. If such impacts were to occur without mitigation to the NRHP-eligible Camp Parks entrance sign located near the intersection of Dougherty Road and 5th Street, or to the one potentially eligible historic archeological site located in the Training Area, they would be considered significant. The importance of impacts to previously undetected buried cultural resources or human remains would depend on the character of the cultural items discovered.

4.7.1 Impact Types

Routine maintenance or restoration authorized to maintain the character and integrity of the sign would not constitute an impact if the work were carried out in an approved manner. Likewise, scientifically valid excavation and/or recovery of archeological or buried cultural sites that has been approved by the SHPO would not constitute an impact.

The following assess the potential for direct disturbance, damage, demolition, alteration, or removal of cultural resources that are or may be eligible for NRHP listing, as well as the loss of integrity of historical resources, the loss of information, or the alteration of site setting.

These impacts can occur to archeological and buried resources when the ground is disturbed during construction/demolition activities, land clearing and grading, digging for utilities, installing infrastructure, or other excavations. The extent of an impact to an archaeological or buried site depends on the depth and breadth of the resource and the degree of intrusion. For example, an isolated artifact would offer less cultural significance than an occupation site with multiple artifacts and occupational evidence.

Indirect impacts to cultural resources can result from looting, or vandalism, or property neglect that may indirectly alter all or part of a cultural site. Long-term property neglect would result in the deterioration of character and integrity of the NRHP-eligible sign. As construction projects occur adjacent to the NRHP-eligible sign, the property may indirectly experience damage through ground vibration or loss of its setting.

4.7.2 Impact Occurrence

4.7.2.1 Impacts Anticipated Under the Proposed Action

There is a slight potential for direct impacts to previously undetected buried cultural resources or human remains from ground disturbance associated with construction, demolition, or maintenance in areas of moderate to high archaeological sensitivity. The likelihood is low due to low sensitivity in proposed construction areas and previous survey efforts. Any planned construction or ground-disturbing activity should be coordinated with the Camp Parks Environmental Office to determine if the activity is planned near any potentially sensitive areas. Standard operating procedures identified in Section 4.7.3 and Appendix A, Table 4-6 should be implemented to avoid and/or mitigate any potential adverse impacts.

The northern Cantonment Area primarily encompasses areas of low sensitivity. The NRHP-eligible entrance sign is located in the southwestern part of the Open Space Land Use Category in the Northern Cantonment Area. There is a potential for direct, adverse impacts to the NRHP-eligible sign associated with any planned construction or modification of existing Building 140. Since no new facilities are planned in the Open Space Land Use Category, no direct impacts are anticipated to the NRHP-eligible sign from potential redevelopment. There is a potential for indirect adverse impacts to the NRHP-eligible sign from damage or loss of setting from development of the southern Cantonment Area. Continued maintenance and preservation of the character of the sign and additional management precautions further defined in Section 4.7.3 and Appendix A, Table 4-6 would mitigate any potential adverse impacts that may occur.

The Training Area was identified as having mostly areas of very low sensitivity with some dispersed areas of moderate sensitivity (ASA 4, ASA 5, and ASA 6) and one small area of high sensitivity (ASA 7). There is one eligible historic period site in the Training Area. The greatest potential for direct impacts in the Training Area would be associated with intense ground-disturbing activities, such as bivouacking, making firebreaks, or erecting structures that require excavation in areas of moderate to high sensitivity. The Directorate of Plans and Training (DPT) should coordinate with the Camp Parks Environmental Office to locate specific military activity sites and ground-disturbing training activities in a manner to avoid the potentially eligible archeological site. Standard operating procedures identified in Section 4.7.3 and Appendix A, Table 4-6 should be implemented to mitigate any potential adverse impacts.

The southern Cantonment Area primarily encompasses areas of moderate (ASA 1) and low (ASA 2) sensitivity. Standard operating procedures identified in Section 4.7.3 and Appendix A, Table 4-6 should be implemented to mitigate any potential adverse impacts.

4.7.2.2 Comparison of Other Alternatives

There is a potential for impacts to previously undetected buried resources under the Slow Growth and No Action Alternatives that are similar to those under the Proposed Action.

Direct impacts to previously undetected buried cultural resources or human remains may occur during any proposed redevelopment in the northern Cantonment Area under the Slow Growth and No Action Alternatives.

The potential for impacts from intense development associated with the southern Cantonment Area would not occur under the Slow Growth and No Action Alternatives. No impacts would be anticipated under the Slow Growth and No Action Alternatives, unless construction were proposed in the future.

4.7.3 Proposed Mitigation

Mitigation specific to the cultural resources at Camp Parks are further discussed in the following subsections. With the following mitigation, the Army determined that the Master Plan would have no adverse effects on the NRHP-eligible entrance since or the historic archaeological site that is located in the Training Area. The SHPO concurred with this finding, and the Section 106 process was completed on 1 June 2006 (USA060519B). Section 106 consultation was completed for Building 121 on the NASA property on December 21, 2006 with a SHPO concurrence that it was not eligible for the NRHP (NASA061127A).

4.7.3.1 Proposed Mitigation for NRHP Eligible Sites

To minimize the potential for adverse effects, the Camp Parks entrance sign would be treated and managed in a manner that prevents the deterioration or destruction of the character of the sign. The sign should be regularly protected and maintained as needed by methods identified and outlined in the ICRMP.

4.7.3.2 Proposed Mitigation for Eligible Historic Archeological Sites

The Army determined that the Master Plan will have no adverse effects on the one NRHP eligible historic archaeological site that is located in the Training Area. The SHPO concurred with this finding and the Section 106 process was completed on June 1, 2006 (USA060519B).

4.7.3.3 Proposed Mitigation for Potential Buried Cultural Resources or Human Remains

If previously undetected cultural resources or human remains were unearthed during construction excavations, the application of standard practices in accordance with the ICRMP would minimize potential adverse impacts. If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or human bone, were inadvertently discovered during ground-disturbing activities, work would stop in that area and within 100 feet of the find. The Camp Parks Environmental Office would be notified immediately. Once notified of the discovery, a Camp Parks Environmental Office representative would visit the discovery site within one workday of notification to examine the discovered material and any in-situ deposits and proceed in accordance with Standard Operating Procedure 11 (HPC SOP 11) of the ICRMP. Work could not resume at that site until an archaeologist had assessed the significance of the find and, if

necessary, developed appropriate treatment measures in consultation with the SHPO and other appropriate agencies. If human remains were encountered, the local coroner and law enforcement agency would be contacted. In the event that human remains of Native American origin were discovered during project construction, compliance with the Native American Graves Protection and Repatriation Act regulations relating to discovery of human remains of Native American origin on federal land is required (43 CFR Part 10).

A geoarchaeological sensitivity study (ASC 2004) developed recommendations of when monitoring should be done in low to high ASAs to specific depths on the installation (Appendix A, Table 4-6). The Army has used these recommendations to develop a monitoring plan, and the SHPO concurred with the plan during the Section 106 process. Since the depth of fill varies across the installation, the point at which the original ground surface or other buried surfaces of concern could be encountered is unknown. A person qualified to differentiate between fill material and the original ground surface would conduct monitoring. The extent of monitoring would coincide with the extent and breadth of the surface-disturbing activity and location.

4.8 SOCIOECONOMICS

Socioeconomic impacts include changes, resulting from an alternative considered in this EIS, to employment and the economy; population; housing; retail, commercial, and industrial enterprise; infrastructure and public services; and social and community relationships; as well as any environmental justice concerns.

4.8.1 Impact Types

Direct socioeconomic impacts are the first-order results of an alternative; for instance, the creation of new jobs at Camp Parks due to increased military assignments. Indirect impacts result from the action of direct impacts within the socioeconomic environment; for instance, the creation of new jobs outside Camp Parks that support jobs and economic activity within Camp Parks. Short-term socioeconomic impacts result from limited duration activities (e.g., construction), while long-term impacts result from ongoing activities (e.g., jobs resulting from anticipated increases in use of Camp Parks).

Impacts to socioeconomic resources from implementation of the alternatives would be considered significant if one or more of the following occurs:

- Substantial gains or losses in population and/or employment.
- Disequilibrium in the housing market such as severe housing shortages or surpluses.
- Project-related demands on public infrastructure or services triggering the need for expanded capacity or resulting in discernible reductions in the level of service provided.

- Activities or operations substantially altering lifestyles or quality-of-life of Camp Parks employees and their families or civilian households living near Camp Parks.

- Disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population, which appreciably exceed those to the general population around the project area.

The ROI for socioeconomic impacts includes Camp Parks itself (including the southern Cantonment Area exchange parcel) along with areas adjacent to Camp Parks in Dublin, San Ramon, and unincorporated portions of Contra Costa County. In some cases the ROI (the "local economy") extends to the entire communities of Dublin, San Ramon, and Pleasanton.[27]

Discernable socioeconomic impacts tend to result from the totality of an action such as redevelopment of Camp Parks, rather than from changes to individual buildings or areas. Therefore, the organization of this section differs somewhat from earlier sections of this chapter. Impacts are organized by type (employment and economy, population, etc.). Within the subsection for each impact type, impacts are discussed first for the Proposed Action and then for other alternatives (Slow Growth and No Action). The discussion includes both on-post and off-post impacts, as well as key mitigation considerations for any significant negative impacts.

4.8.2 Impact Occurrence

4.8.2.1 Impacts Anticipated Under the Proposed Action

4.8.2.1.1 Impacts to Employment and the Economy

The expanded installation mission, increased staff levels, and additional training requirements associated with redevelopment of Camp Parks would generate increased benefits for the local economy and surrounding communities. These benefits would include new permanent on-post jobs (the daily planning population would increase from 920 to 1,020, per Appendix A, Table 2-1).

Also contributing to the increased economic benefits would be workers associated with facility maintenance and construction and the temporary population that would be involved in training and other activities on a short-term basis at Camp Parks. New employment associated with construction would be a short-term benefit during the construction period. In the case of temporary military assignments, the duration of these activities would range from one-day or weekend events to multi-month, temporary duty assignments. Given the large physical area, the array of facilities at Camp Parks, and the wide range of units showing active needs for training facilities, multiple short-term

[27] *For a portion of the retail market analysis, the study area extends beyond these three communities.*

activities might occur simultaneously at Camp Parks. In effect, these many temporary activities would constitute a long-term impact, providing new jobs on Camp Parks and new income and expenditures in the local economy.

New permanent jobs at Camp Parks would introduce new income and expenditures to Dublin and surrounding communities, depending on where the military and civilian personnel live. Many of the workers associated with temporary construction projects would be drawn from the existing population of Dublin and surrounding communities, and therefore much of the income supported by construction jobs would be spent locally. Military personnel on temporary assignments would continue to receive their paychecks at their homes, many of which would be outside the local area. However, while assigned, these personnel would spend some of their income in the local economy (e.g., for basic needs and entertainment). In all these cases, the redevelopment of Camp Parks would produce an indirect benefit—the creation of additional jobs and income supported by the expenditures of increased military and civilian personnel assigned to Camp Parks, as well as increased expenditures by Camp Parks itself for various goods and services.

Substantial construction activity would be associated with development of the Dublin Crossing parcel, resulting in a short-term economic stimulus—new jobs and new income and expenditures—to Dublin and surrounding communities. Further, the retail and office facilities associated with Dublin Crossing would provide new permanent jobs and income for the local economy. Expenditures by businesses at Dublin Crossing and re-spending of income earned by workers employed at Dublin Crossing would indirectly support additional new jobs in the local economy. While the ultimate scope of development at Dublin Crossing is unknown, potential positive employment, income, and expenditure effects from the land exchange are considered significant.

4.8.2.1.2 Impacts to Population

Under the Proposed Action, redevelopment of Camp Parks would result in a population increase from expansion of full-time staff and from personnel on temporary assignments. The Proposed Action anticipates a population increase at build-out of 11 percent for daily personnel (from 920 to 1,020) and 85 percent for the total of assigned personnel (from 2,297 to 4,242) as summarized in Appendix A, Table 2-1. In other words, the total of assigned personnel is projected to increase by 1,945. These increases would be substantial for Camp Parks, but relatively small within the regional context. For example, the change in the total of assigned personnel of 1,945 people would represent 6.5 percent of the City of Dublin's population of 29,973 in 2000 and 1.4 percent of the Dublin/Pleasanton/San Ramon combined population of 138,349 in 2000. This level of population increase is easily accommodated by projected growth for the local area (see Chapter 5). It should not create significant negative impacts. For instance, the additional population can be easily accommodated by existing and proposed on-post and off-post infrastructure and services (Section 3.8.6).

Under this alternative, the southern Cantonment Area would be developed as Dublin Crossing, which would include relatively high-density residential land use. This study

assumes 1,996 residential units would be built. Assuming 95 percent occupancy and an average household size of 2.65 (Appendix A, Table 3-16), the population at buildout would be 5,025. This additional residential population would continue the trend of major new residential development in the area around Camp Parks. This speculative projection of 5,025 people is equivalent to 16.8 percent of the City of Dublin population in 2000, and 3.6 percent of the Dublin/Pleasanton/San Ramon combined population in 2000. Chapter 5 puts this projection in the context of surrounding growth and local population trends. The effect of this population increase is not considered significant on a regional basis, although it could be significant within the City of Dublin. The City of Dublin would be responsible for providing infrastructure and services to Dublin Crossing and would complete an Environmental Impact Report under the California Environmental Quality Act before the development proceeds.

In addition to new population working at Camp Parks or living at Dublin Crossing, additional population growth resulting from the Proposed Action must be considered. The retail and office space to be built at Dublin Crossing would support jobs, not all of which would be filled by residents of the new housing at Dublin Crossing. Some additional population growth would occur in the local area due to these jobs, while some jobs would be filled by commuters from outside the local area. Any local population growth due to these jobs would be well within the ranges of population growth predicted for the study area (see Chapter 5). While construction activities could be substantial, these activities are not expected to generate significant additional population because construction workers would be more likely to commute to Camp Parks from around the region than move into the localized area around Camp Parks, due to the short-term nature of construction projects. Additionally, indirect or secondary employment generated by Camp Parks activities would also not result in an identifiable population increase.

4.8.2.1.3 Impacts to Housing

The increased population at Camp Parks would result in an increased demand for housing, of the following three types:

- Annual Training (AT) Billets—Reconstructed and expanded AT billets would be required to house the soldiers that come to the installation for short-term training. These facilities would need to be within walking distance of the training facilities and the core community support facilities for dining and recreation.

- Unaccompanied Personnel Housing (UPH)—Reconstructed UPH billet facilities would be required to house the unaccompanied enlisted and officer soldiers that are permanently assigned to the installation on a full-time basis. UPH billets should be located in more direct relationship to family housing and community support facilities than to facilities in the operations and training or military business-related land use areas.

- On-post Family Housing—Family housing for personnel associated with military installations often occurs outside the installation; however, family housing in the San Francisco Bay Area is at a premium. Camp Parks is located on the eastern

edge of the Bay Area and has a difficult time attracting permanent party soldiers due to the lack of affordable family housing in the immediate vicinity of Camp Parks. Therefore, family housing for Camp Parks personnel who are accompanied by their families would be required.

Under the Proposed Action, on-post non-family housing would be maintained, upgraded, and replaced as summarized in Appendix A, Table 2-2 and Table 4-7. Existing AT and UPH billets would be demolished. Four new AT billet facilities sized at 300 people each for a total of 1,200 AT billet spaces would be provided. For unaccompanied personnel, new facilities would provide 65 spaces. A total of 114 new family housing units have already been constructed under the RCI (Appendix A, Table 3-18).

Additional improvements to the housing stock planned under the Proposed Action would further improve the quality of Camp Parks' overall community resources and support an increased sense of community within Camp Parks. The change in the balance of family versus unaccompanied personnel housing (net gain of 101 for the former, net loss of 46 for the latter) reflects the more permanent career-oriented character of today's Army. With the already constructed new family housing and improved non-family housing facilities proposed within the Master Plan, only a small portion of the new population associated with the Proposed Action would generate increased housing demand outside of Camp Parks.

Under the Proposed Action, the Dublin Crossing parcel would include substantial new housing. As shown in Appendix A, Table 4-8, this study assumes this development would provide 216 single family units, 600 multifamily units (apartments), and 1,180 townhome units. These units would likely absorb some of the residual housing demand generated by the Camp Parks Master Plan, and would provide housing for additional new population expected in the study area.

4.8.2.1.4 Impacts to Retail, Commercial, and Industrial Enterprise

The Proposed Action includes new and replacement construction to provide retail, office, and industrial space as shown in Appendix A, Table 2-2 and Table 4-7. This would include a 15,000 square foot Post Exchange and bank that would fulfill some retail needs of personnel associated with Camp Parks and would also serve off-post military and retired military personnel in the greater Dublin/San Ramon/Pleasanton area and perhaps beyond. Because this facility would not fulfill all needs for services for individuals associated with Camp Parks, local retail merchants and other commercial enterprises would benefit from the expenditures of these individuals and from Camp Parks administrative purchases in the local area. As noted earlier, these expenditures would produce new income and support new jobs, generating a small but positive impact to the local economy. Impacts to local industrial enterprises are not expected, as Camp Parks would not be a direct purchaser of industrial output.

The redevelopment of Camp Parks would include adequate administrative and industrial space (e.g., offices, classrooms, warehouses) to serve the needs of the level of training

and other military activity anticipated at Camp Parks into the foreseeable future. No significant impact on the local market for commercial and industrial space is anticipated.

The Dublin Crossing development, per this study's assumptions summarized in Appendix A, Table 4-8, would include 196,000 square feet of retail and 196,000 square feet of office space. It would not include industrial space. A market study prepared for the City of Dublin (Keyser Marston 2004) reviewed projected growth and retail expenditures by residents of the potential Dublin Crossing retail trade area (Dublin, San Ramon, Pleasanton, Livermore, and Castro Valley) to the current supply of retail space and some retail space expected in the near future. This study suggested that upscale comparison retail (apparel, general merchandise, furniture and furnishings, and other specialty retail), niche retailers, and eating and drinking establishments are most likely to be successful at Dublin Crossing. The potential for convenience retail (food and drug stores) is limited, with the exception of specialty food retailers. This type of market study—evaluating demand versus supply—illustrates that the impact of new retail space depends on the type of retail that is built. Choices that address retail categories that are undersupplied provide a benefit by satisfying unmet needs of local residents and capturing more of the available retail expenditures within the local economy. Choices for oversupplied retail categories tend to pull purchases away from existing retailers, producing a negative impact on those retailers and producing no net gain for the local economy. In the absence of detailed information on the tenant mix of retail space at Dublin Crossing, it is impossible to determine the types of impacts that would occur.

With regard to office space, the market study indicated that there is a considerable oversupply of existing and approved office in Dublin relative to the projected number of jobs that Dublin is likely to capture within the local economy. Thus, new office space at Dublin Crossing might simply pull tenants and rents from existing office space. However, the market study noted that niche office market opportunities might exist, especially given the locational advantage of Dublin at the junction of two major freeways. In the absence of detailed information on the market positioning of new space at Dublin Crossing, the nature of the impacts of this space on the local economy cannot be determined.

4.8.2.1.5 Impacts to Infrastructure and Public Services

With the increased population and level of activity at Camp Parks in association with redevelopment of the post, there would generally be an increase in the demand for infrastructure and public services. These demands and the capacity of Camp Parks and local/regional infrastructure and service to address them are summarized below.

Water and wastewater: The water distribution and wastewater collection systems at Camp Parks would continue to be improved and operated by the DSRSD as part of the privatization process already underway. Proposed redevelopment may require the relocation or upsizing of some pipelines in order to comply with DSRSD requirements. Additional water connection fees may need to be paid, both Zone 7 and DSRSD, and service connections installed in order to provide service to the proposed redevelopment. Camp Parks may transfer existing water connection fee credits, both Zone 7 and DSRSD,

to new buildings within Camp Parks from existing buildings once those buildings have been abandoned. Water supply and wastewater treatment needs could be accommodated within the projected DSRSD capacity for the region.

Recycled Water: District Ordinance 301 requires that new development located within the potable water service area of the District, which represents landscape irrigation demand for recycled water, must provide for and utilize recycled water. Unless specifically exempted by the District Engineer, compliance with Ordinance 301, as may be amended or superseded, is required. Camp Parks will be responsible for installing any required recycled water facilities during redevelopment. Some existing potable irrigation meters may be required to be transferred to the recycled water system.

Energy Efficiency: In compliance with Executive Order 13423, the US Army will ensure that new construction and major renovation of buildings at Camp Parks comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings set forth in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (2006). Compliance with EO 13423 is anticipated to result in reduced impacts to the human environment by employing integrated design, optimizing energy performance, protecting and conserving water, enhancing indoor environmental quality, and reducing the environmental impact of materials.

Communication equipment: As the installation is redeveloped, telephone services could be extended to new activity areas and facilities at Camp Parks on demand. Also, planned equipment upgrades to the telecommunications system would occur.

Solid waste: An increase in population and activity at Camp Parks and the redevelopment itself would result in increased solid waste streams along with increases in associated demands for solid waste removal, disposal, and diversion methods. Source reduction methods include, but are not limited to, participation in the Camp Parks Qualified Recycling Program (QRP) and purchasing of recycled materials and supplies. All materials reused, salvaged, recycled, and disposed of within or independent of the Camp Parks managed refuse contract and QRP would be reported and submitted. Solid waste management would continue to be conducted in accordance with the Integrated Solid Waste Management Plan (ISWMP) and QRP and would be coordinated with Directorate of Public Works, Directorate of Logistics, Solid Waste Manager, and QRP Manager at Camp Parks. Any potential increases in solid waste generation at Camp Parks would be minimal compared to the total generation in the region, and existing landfills and other facilities could accommodate additional waste.

Affirmative procurement: Materials and supplies with recycled content would continue to be purchased and used, with source reduction in mind. This includes office supplies, general supplies, and construction materials. Quantities of all purchased materials would continue to be tracked and reported to Camp Parks staff.

Electrical services and natural gas: As new facilities are constructed, demand for electricity and natural gas would steadily increase. PG&E would be responsible for providing electrical and natural gas service and infrastructure to new facilities south of 8th Street and probably to facilities to the north if privatization occurs. Regional effects of additional demand for electricity and natural gas would be minimal.

Public safety: Camp Parks redevelopment would generate an increased demand for fire protection, law enforcement, and medical services. Existing and planned facilities should provide sufficient physical infrastructure to meet existing and increased demand. An 8,200-square-foot, two-company fire station was recently constructed. Existing medical facilities would be replaced with a new 6,000-square-foot medical clinic. Public service staff would be added as necessary to meet increased demand. Other community resources (e.g., the City of Dublin and local off-site medical facilities) could help meet needs as well. The demand on these resources from Camp Parks is not expected to be substantial due to self-provision of public safety facilities and services.

Public schools: Students from families of Camp Parks-assigned personnel would be added to the school population in the eastern portion of the Dublin Unified School District (DUSD). Schools in this district are generally at or exceeding capacity. About 200 to 300 new students could be added to DUSD (Appendix A, Table 2-1), which (using the higher figure) would may require additional teachers and/or classrooms for some of the 13 grades. Impacts would be typical of those in other rapidly growing areas, although military subsidies may be available as mitigation.[28]

In summary, the on-site infrastructure and service improvements would be beneficial impacts associated with implementation of the Proposed Action. Requirements of local public services to support the redeveloped community within the post would be minimal except for schools, where the need for additional teachers and/or classrooms might prove a hardship. However, military subsidies typically provided to schools attended by the children of active-duty military personnel may be available to at least partially mitigate these impacts.

In addition, the Proposed Action includes the Dublin Crossing development in the southern Cantonment Area. If the exchange of the land to private sector owners were to occur as proposed in the Master Plan, the exchanged parcel would be under the jurisdiction of the City of Dublin after the land is transferred. The City of Dublin and any special management and school districts would then be responsible for provision of public infrastructure and services to this development area. While the ultimate scope of

[28] *The increase in students whose parents live on or work on federal property would increase federal aid per student to the schools in the area. (NMFA 2006).*

potential development on the exchange parcel is still unknown, the level of development assumed in this study would create significant demand for public infrastructure and services. The City of Dublin would prepare an Environmental Impact Report on the final Dublin Crossing proposal, which should include determinations of the capacity of the city and local special districts to provide the infrastructure and services required.

4.8.2.1.6 Impacts to Social and Community Relationships

Camp Parks would continue to be an established part of the Dublin community. As an important component of the Proposed Action, the goals and objectives identified in the Master Plan to enhance "good neighbor" partnerships and foster information exchange would serve to increase the quality of Camp Parks' relationship with the community. Redevelopment of the Cantonment Area would likely improve its aesthetics, producing benefits for local residents that can see this area from nearby streets. In general, a revitalization of the installation would bring overall benefits to Camp Parks' relationship with the communities of Dublin, Pleasanton, and San Ramon.

Potential development scenarios for the exchange parcel could create community interest and excitement. Depending on individual and group perspectives, disposal of the identified lands to a developer(s) could be considered either beneficial or adverse. In the long run, the willingness of Camp Parks to release this parcel and facilitate economic development in this strategically located part of Dublin would likely be viewed positively by most area residents. However, follow-through on the "good neighbor" policies and information exchanges contemplated under this alternative would be essential since Dublin Crossing residents and visitors would be in closer proximity to the Cantonment Area than most existing residents of Dublin.

4.8.2.1.7 Environmental Justice

The redevelopment of Camp Parks has been proposed with the intent of supporting the post's increasing training mission and is not designed to create a benefit for any group or individual. The proposed redevelopment of Camp Parks was evaluated to determine whether its environmental effects would disproportionately affect minority or low-income populations. A review of social and economic data (Section 3.8.8) did not disclose the existence of identifiable minority or low-income populations in the immediate vicinity of Camp Parks.[29] Furthermore, mitigation measures described throughout this EIS would reduce the environmental effects of the redevelopment alternatives for the region's entire population, rather than for a specific subgroup of the population. Because identifiable minority or low-income populations do not occur in the vicinity of Camp Parks, implementation of the Proposed Action would not

[29] *The portion of the population that is temporarily incarcerated in the prison is an artificial component that is not reflective of the surrounding community in terms of race or income. It has therefore been excluded from consideration of environmental justice considerations.*

disproportionately affect minority or low-income populations and would not require mitigations for environmental justice impacts.

4.8.2.2 Comparison of Other Alternatives

The impacts of the Slow Growth and No Action Alternatives are compared to those of the Proposed Action by socioeconomic topic below. In general, the Proposed Action would have the greatest impact on the social and economic fabric of the area because it would entail the greatest development in Camp Parks and Dublin Crossing. The impact of the Slow Growth Alternative would be less, even if the same Master Plan facilities were built because Dublin Crossing would not be developed and because the timeframe for development on Camp Parks would be twice as long. The No Action Alternative would have the least impact on the social setting and economy in the area. However, its impacts might be disproportionately greater than warranted by the extent of its development because that development would be unpredictable and services to support any additional personnel could not be foreseen.

4.8.2.2.1 Impacts to Employment and the Economy

Benefits to the local economy from new employment, income, and expenditures from the Slow Growth Alternative would be much less than under the Proposed Action. This is because this alternative would be implemented more gradually, resulting in less cumulative economic activity over the study period and because the Dublin Crossing land exchange and development would not occur. The No Action Alternative would produce very limited economic benefits. New activities and facilities would be accommodated only as funding becomes available. Some short-term benefits would occur with the occasional construction of new and replacement buildings. The Dublin Crossing parcel would not be developed. Few permanent jobs or direct or indirect economic benefits would accrue to the local economy.

4.8.2.2.2 Impacts to Population

The population increase associated with the Slow Growth Alternative would occur more gradually. There would be minimal population change beyond the Camp Parks boundary, particularly because the retail and office jobs contemplated at Dublin Crossing would not be created. Under the No Action Alternative, population increases on-post would be minimal, and increases off-post are not expected. The population increases that would result from either the Slow Growth Alternative or the No Action Alternative would not be significant.

4.8.2.2.3 Impacts to Housing

The Slow Growth Alternative includes the same non-family housing billets and unaccompanied personnel spaces in the Proposed Action, but would be developed at a more gradual redevelopment pace. The No Action Alternative would not include additional non-family housing or upgrades. Under these two alternatives, the housing changes would be associated with more gradual population increase in response to

increased service demands from Camp Parks and thus are not expected to cause significant impacts on housing demands at Camp Parks or the surrounding area.

4.8.2.2.4 Impacts to Retail, Commercial, and Industrial Enterprise

The Slow Growth Alternative would provide some benefits to Camp Parks in terms of fulfilling needs for on-post retail and administrative space, albeit at a slower pace than under the Proposed Action. The No Action Alternative would address on-post retail and administrative space needs on an ad hoc, slow, and probably inefficient basis.

Neither the Slow Growth Alternative nor the No Action Alternative would have significant impacts, positive or negative, on retail and commercial sectors of the local economy. Dublin Crossing and its projected retail and office space would not be built.

4.8.2.2.5 Impacts to Infrastructure and Public Services

Under the Slow Growth Alternative and especially under the No Action Alternative, impacts to public infrastructure and services would occur more gradually. The impacts of the No Action Alternative would by minor, while those of the Slow Growth Alternative would be delayed. Any requirements for off-site infrastructure and services should be easily met. The slower pace of redevelopment under these alternatives should enable the schools to accommodate any increase in the number of students by planning ahead. In addition, these two latter alternatives would not have the additional impacts that would likely be associated with the eventual private development of the southern Cantonment Area.

4.8.2.2.6 Impacts to Social and Community Relationships

The Slow Growth Alternative would also bring the benefits of Camp Parks revitalization to the surrounding communities, albeit at a slower rate. The Slow Growth Alternative would avoid the likely high-density development associated with the land exchange, and it would thus have lower impacts to social and community relationships than the Proposed Action. The No Action Alternative would be the least desirable option with regard to community relations, because it would fail to revitalize Camp Parks in any meaningful way and the Cantonment Area would remain more incompatible than it would after redevelopment under the other two alternatives.

4.8.2.2.7 Environmental Justice

Implementation of the Slow Growth or No Action Alternatives is also not expected to disproportionately affect minority or low-income populations since these populations do not occur in the vicinity of Camp Parks. Therefore, no environmental justice impacts would result from any of the alternatives in this study.

4.9 LAND USE, TRANSPORTATION AND ACCESS

4.9.1 Land Use

This section describes the potential impacts from the Proposed Action, Slow Growth, and No Action Alternatives to land use at Camp Parks. The land use impact analysis is based on the following assumptions:

- The majority of the installation would remain in military ownership and existing land uses for training and training support would remain, with the exception of the southern Cantonment Area under the Proposed Action.
- Development would be contained to the Cantonment Area.
- The Training Area would remain largely undeveloped.
- The southern Cantonment Area would be privately developed into a mixed-use neighborhood under the Proposed Action.
- The areas neighboring the installation would continue to develop at the current pace, which is progressing toward full build out within the San Ramon Growth Boundary and City of Dublin.

The ROI for land use includes the current installation boundaries and neighboring lands adjacent to the installation. The land use impact analysis considers compatibility with neighboring uses, consistency with relevant local land use policies, and potential to change or displace existing uses. Potential land use conflicts or incompatibilities are often the result of other environmental effects, such the generation of noise, traffic congestion, or visual contrast. Specific environmental issues and their potential significance (traffic, air quality, noise, and visual conflicts) are discussed in detail in the associated relevant sections throughout this chapter. Because Camp Parks is a federally owned and managed facility, local planning agencies have no jurisdiction over the installation. However, the incompatibilities between the project and local regulations and community vision will be disclosed in the following section.

Land use impacts resulting from the redevelopment of Camp Parks would be considered significant if they were to represent a substantial change in existing land uses, disrupt or divide established land use configurations, conflict with established land uses, cause considerable land ownership changes, or be inconsistent with adopted local or regional land use plans.

4.9.1.1 Impact Types

Types of impacts that can occur to land use resources are direct and indirect in nature. Conflicts with existing land uses, plans, or policies constitute direct impacts, while changes to development patterns off-post are considered an indirect impact. Direct and indirect impacts can occur from new developments, land use changes, and rezoning. Impact types and possible mitigation measures are discussed in the following subsections.

Direct impacts to land use can result from changes in land ownership, compatibility with neighboring uses, consistency with relevant local land use policies, and potential to change or displace existing uses.

Indirect impacts to land use can result from indirect changes to land use and patterns of development in neighboring areas or degradation of land quality. Degradation of land quality is associated with the deterioration of natural resources, including vegetation and water resources.

4.9.1.2 Impact Occurrence

4.9.1.2.1 Impacts Anticipated Under the Proposed Action

4.9.1.2.1.1 Site-wide

Under the Proposed Action, Camp Parks would remain in federal ownership with land uses that support military training. The area surrounding Camp Parks has been rapidly developing without regard to the training activity or the existence of the installation; therefore, current activities on Camp Parks do not appear to influence off-site land uses and ownership. The generally undeveloped and open character of the Training Area, however, may have influenced the primarily residential and less urban character of the development occurring north and east of the installation, as opposed to the generally urbanized nature of development to the south and west.

The Cities of Dublin and San Ramon have assigned land use designations to the Camp Parks installation (Appendix B, Figure 3-15). The San Ramon General Plan 2020 designated the portion of Camp Parks north of the county line as open space. This designation is generally consistent with the undeveloped, open nature of the Training Area intended to remain under all alternatives. The Dublin General Plan designated the portion of Camp Parks south of the county line as Public Lands which the General Plan does not further define or associate with approved or recommended land uses.

4.9.1.2.1.2 Northern Cantonment Area

Existing land uses are indiscriminately scattered throughout the northern Cantonment Area, with many inefficiencies between uses, segregated land uses, and some areas with adjacent incompatible uses (Appendix B, Figure 3-15, Figure 3-16, and Figure 1-4). Despite these issues on the installation, the existing uses on Camp Parks are compatible with uses occurring off-post and there are adequate open space buffers along the installation boundaries.

The Proposed Action propose a major consolidation of existing land uses within the northern Cantonment Area. Land uses would not change, but the patterning of land uses would be improved. These improvements assign specific land use categories, provide for more efficient use of the Cantonment Area and reduce or eliminate identified land use conflicts. Establishing land use categories improves the functional relationships between related land uses, such as housing and recreation, housing and operations, and operations

and industrial. The type and intensity of land uses proposed generally would be consistent with surrounding land uses. Open Space Land Use areas would be maintained between the proposed Camp Parks land use categories and residences that lie west of the installation across Dougherty Road. Open space is not proposed between the DEPMEDS or DSRSD and Dougherty Road. These areas would not pose conflicts. Operations and Open Space areas are compatible with the public and semipublic office land use that occurs east of the installation boundary in the northern Cantonment Area.

4.9.1.2.1.3 Training Area

The Cities of Dublin and San Ramon have identified existing land use conflicts between the military training uses and adjacent residential development (Contra Costa County 1992a and City of Dublin 1992). Potential land use incompatibilities identified include the level of activity on the installation and the use of artillery, helicopters, troops, demolition exercises, and other equipment in the areas adjacent to residences, which has the potential to result in substantial land use conflicts related to noise and safety. The potential for these land use conflicts identified by the neighboring areas would continue to persist under all alternatives; however, mitigation measures employed by the surrounding development would minimize the intensity of these conflicts. The mitigation measure outlined in the Dougherty Valley Specific Plan EIR (Contra Costa County 1992b) called for the project proponents to install security fencing along the northern perimeter of Camp Parks and the proposed residential development to meet the material specifications of the Army (Contra Costa County 1992b). The mitigation measure identified in the East Dublin Specific Plan (EDSP) EIR (City of Dublin 1992) called for the City of Dublin to coordinate its planning activities with the Army so that compatible land uses can be formulated in the vicinity of the EDSP planning area. The mitigation measure also called for the City to consult with the Army for any specific development proposals that arise as a result of the EDSP (City of Dublin 1992). Mitigation already proposed in the EIRs would be adequate to minimize these land use conflicts. The proposed action would have no impact on the 27.4 acre Tassajara Creek Regional Park which is adjacent to northeast corner of the Training Area.

4.9.1.2.1.4 Southern Cantonment Area

Under the Proposed Alternative, ownership of the southern Cantonment Area would move from the federal government to a private developer in exchange for services in support of redevelopment within the northern Cantonment Area. Subsequent to the land exchange, the area is anticipated to be developed into a high-density residential, mixed-use area that would be subject to the City's zoning, permitting, and planning processes. The change in land ownership from federal into the private sector and purview of the City of Dublin and a change in existing land uses from military training support to a mixed-use development both constitute significant direct impacts to land use.

Approval and implementation of the Proposed Alternative would convert a largely vacant area (previously developed vacant lots and old parking areas and roads) surrounded by urban uses to a more intense urban area, including office, residential, and commercial uses. Final decisions on specific land uses have not yet been approved by the City and

are subject to review and modification at the discretion of the Dublin City Council; however, a mix of residential, retail, and multifamily, office/hotel, civic, open space, school, and infrastructure land uses has been included in this EIS for analysis. The varying uses within mixed-use development are expected to be compatible with one another because the City's General Plan policies establish requirements for compatible development, including buffering, screening, controls, and performance standards. The redevelopment would also be compatible with the mixed uses in neighboring areas off post given the same open space buffering and other types of screening controls implemented in the development. The Operations, Housing, and Open Space Land Use Categories in the adjacent northern Cantonment Area would also be compatible with the mixed-use development.

If the land exchange were accomplished, the City of Dublin would need to amend its General Plan and guide development on this property according to the amended plan, zoning regulations, and other City policies and regulations.

4.9.1.2.2 Comparison of Other Alternatives

Under the two alternatives, Slow Growth and No Action, Camp Parks would remain in federal ownership with land uses that support military training. In the northern Cantonment Area, the existing land use patterning would largely remain under the No Action Alternative, and inefficiencies and incompatibilities could either decrease or increase over time as new projects are initiated on a site-specific basis. The beneficial changes to land use patterning would occur more slowly under the Slow Growth Alternative, which would take much longer to implement than the Proposed Action.

Under the Slow Growth and No Action Alternatives, direct and indirect impacts associated with land use conflicts in the Training Area would be anticipated from an increase in intensity and duration of training as normal population increases occur and new facilities are constructed as money becomes available.

Existing land uses in the southern Cantonment Area primarily include Maintenance/ Warehousing, Operations/ Training, and Open Space Buffer (Appendix B, Figure 3-16). Although the current uses have resulted in inefficient and indiscriminately segregated uses, there are currently no conflicts between adjacent uses on post and off post. The lack of conflicts is primarily attributed to the similar industrial, commercial, and office uses off post and the dispersed open space buffer on post. The existing land use patterning would largely remain under the No Action Alternative, and land use conflicts could arise over time as new projects are initiated on a site-specific basis. Under the Slow Growth Alternative, the southern Cantonment Area would continue to be ruderal grasslands with scattered facilities and designated as an "opportunity site" for development. Since such plans are not known at this time, land use impacts can't be determined. However, at such time that a facility is proposed, a land use analysis would be conducted that considers compatibility with adjacent uses on and off post. Until then, the undeveloped grassland in this area would serve as a buffer between on-post and off-post uses and would be consistent with other uses.

4.9.1.3 Proposed Mitigation

Under the Proposed Action, the type and intensity of land uses proposed is not consistent with the City of Dublin's current designation of public and semipublic. If the land exchange were accomplished, the City of Dublin would need to amend its General Plan and guide development on this property according to the amended plan, zoning regulations, and other City policies and regulations.

Potential land use incompatibilities identified in the Training Area under all alternatives include the level of activity on the installation and the use of artillery, helicopters, troops, demolition exercises, and other equipment in the areas adjacent to residences, which have the potential to result in land use conflicts related to noise and safety. The potential for these land use conflicts identified by the neighboring areas would continue to persist; however, mitigation measures employed by the surrounding development could minimize the intensity of these conflicts. For example, the mitigation measure outlined in the DVSP EIR called for the project proponents to install security fencing along the northern perimeter of Camp Parks and the proposed residential development to meet the material specifications of the Army (Contra Costa County 1992b). The mitigation measure identified in the EDSP EIR called for the City of Dublin to coordinate its planning activities with the Army so that compatible land uses can be formulated in the vicinity of the EDSP planning area. The mitigation measure also called for the City to consult with the Army for any specific development proposals that arise as a result of the EDSP (City of Dublin 1992). Mitigation already proposed in the EIRs would be adequate to minimize these land use conflicts.

4.9.2 Transportation and Access

This section presents the direct and indirect impacts on the transportation system resulting from the Proposed Action, Slow Growth, or No Action Alternatives. Section 4.9.2.1 discusses impact setting, including the roadway network serving trips to and from Camp Parks, including the area proposed for development as Dublin Crossing, and aspects of Master Plan implementation in the northern and southern Cantonment Area that are especially relevant to transportation and access. Section 4.9.2.2 describes impact occurrence, including the traffic impact methodology used to assess the direct and indirect traffic impacts associated with the Proposed Action, the impacts of the Proposed Action on the LOS at key intersections in the transportation network, and the impacts of the Proposed Action on pedestrian, bicycle, and transit accessibility. Section 4.9.2.3 describes potential traffic mitigations for critical intersections in the vicinity of Camp Parks. Unlike the considerations of impacts for other resources in this chapter, the consideration of transportation impacts assumes the presence of other approved and planned projects included in the City of Dublin's buildout scenario because this is how traffic was modeled. Thus, this transportation discussion addresses cumulative impacts in those cases where it is based on transportation modeling.

Impacts to transportation and access from implementation of the alternatives would be considered significant if the following were to occur:

- Exceedance beyond the City of Dublin's traffic standard of at least LOS D.
- Result in major traffic hazards, or would contribute considerably to cumulative traffic increases that would cause deterioration in LOS to unacceptable levels (LOS E or F depending on the magnitude of the project's contribution to worsening of delay).

4.9.2.1 Impact Setting

4.9.2.1.1 Roadway Network

The study area, the major intersections serving trips to and from Camp Parks including Dublin Crossing, consists of 14 existing intersections and two planned intersections (Appendix B, Figure 3-17). Together, these intersections represent the major street and highway interchange locations in the City's street network that feed trips to and from Camp Parks including Dublin Crossing. There are several important roadway segments serving the project site, described in Section 3.9.2

4.9.2.1.2 Northern Cantonment Area

The Camp Parks Master Plan consists of several key development initiatives that potentially impact the volume of traffic entering and exiting Camp Parks. The personnel increases associated with redevelopment under the Master Plan are superimposed on the population associated with the net increase of 100 residential units in the RCI and the 84 additional personnel expected to be associated with the new CA ARNG facilities.

The Camp Parks Master Plan proposes to relocate the Main Gate from the south side of the installation (at Dublin Boulevard) to the west side at Amador Valley Boulevard and Dougherty Boulevard. This would facilitate the redevelopment of the southern Cantonment Area as Dublin Crossing. Data on the additional peak traffic entering and exiting Camp Parks as a result of these actions are taken from the Army's Camp Parks Traffic Analysis.

4.9.2.1.3 Southern Cantonment Area

In partnership with the Army, the City of Dublin sponsored two charrettes to develop a vision for future private development as Dublin Crossing (Section 2.1.2). After the charrettes, the City held several public follow-up meetings to discuss the elements of the Dublin Crossing development alternatives and screen out some of the alternatives, based on Dublin City Council's specific direction. The results of these subsequent meetings resulted in modifications to charrette Alternative 5 (RTKL 2004), which is the Dublin Crossing scenario evaluated in all sections of this EIS except this transportation section. A modified version of charrette Alternative 5 is evaluated for transportation impacts below, as the transportation modeling used in this section and performed by the City of Dublin and its contractors was based on this modified version (*pers. comm.*, Bascom 2005, Kuzbari 2005, Wu 2005).

At the February 15, 2004, Dublin City Council meeting, City planning staff solicited feedback from the City Council on the top three land use alternatives. With some minor exceptions, City of Dublin officials supported a mixed-use village concept that integrated open space with medium- to high-density uses in a grid street network focused on Central Parkway as a main east-west arterial spine. The mixed use concept consists of five major uses: low- to mid-density residential, mixed use retail, campus office, parks/open space, and elementary school.

At the direction of City of Dublin staff, TJKM Transportation Consultants conducted a traffic analysis to assess what impact the Dublin City Council's modified versions of charrette Alternative 5 had on the City's critical intersection, Dublin and Dougherty during the PM peak hour.[30] The land use assumptions analyzed for the City's traffic study are shown in Appendix A, Table 4-9. These land use assumptions are the basis for trip generation estimates resulting from the modified charrette Alternative 5 proposal for Dublin Crossing,[31] and the projected critical turning movements for the intersections in the study area.

Under this alternative, there are four main access points to the proposed development site: Dougherty Road/Central Parkway, Dublin Boulevard/Iron Horse Parkway, Dublin Boulevard/(not yet named), Arnold Drive/Central Parkway.

4.9.2.2 Impact Occurrence

4.9.2.2.1 Impacts Anticipated Under the Proposed Action

To evaluate the impacts of traffic resulting from implementation of the Proposed Action, traffic was modeled using a methodology that defined trip generation, trip distribution, and trip assignment.

4.9.2.2.1.1 Traffic Impact Methodology

Trip generation is defined as the number of "vehicle trips" produced by a particular land use or development. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the sum of inbound and outbound trips.

Trip generations for residential and retail/office uses were reduced by 25 and 15 percent, respectively, to account for internal tripmaking, alternative forms of transportation and

[30] *This modeling of transportation impacts assumes the presence of other approved and planned projects included in the City of Dublin's buildout scenario. Thus, this transportation discussion addresses cumulative impacts where it is based on transportation modeling.*

[31] *Major differences between charrette Alternative 5 and the modified charrette Alternative 5 (identified by TJKM as Alternative 3) are that the modified version has fewer overall residential units (fewer single family, fewer low density multi-family units, and more medium/high density multi-family units), more retail square footage, more general office square footage, and more public/semi public use square footage, as well as a somewhat different layout of land use.*

transit/BART use. These trips were then assigned to traffic zones designated according to the land use scenario developed in accordance with guidance from the Dublin City Council.

Appendix A, Table 4-10 shows that the Camp Parks Master Plan redevelopment would generate 101 AM peak hour trips and 105 PM peak hour trips, with the entirety of trips entering and exiting the northern Cantonment Area via the Main Gate at Amador Valley Boulevard and Dougherty Road.

Trip distribution assumptions were developed in consultation with the City of Dublin's Traffic Engineer and traffic engineering consultant. Trips to and from Dublin Crossing and the Camp Parks northern Cantonment Area were assigned to the study intersections based on the distribution methodology applied to a new gravity flow transportation model developed for the City of Dublin.

To evaluate traffic impacts for the Proposed Action, traffic generated by planned developments in Dublin, Pleasanton, and Dougherty Valley were assigned to the roadway network using the City of Dublin's traffic forecasting software and new gravity-based traffic model (*pers.comm.* Bascom 2005, Kuzbari 2005, Wu 2005). The assigned traffic was added to the City's buildout turning movement volumes to produce "buildout + project" traffic forecasts.

Trip generation assumptions were developed based on existing travel patterns and professional knowledge of the study area. Trips to and from the northern Cantonment Area and Dublin Crossing were assigned to the study intersections based on these assumptions.

4.9.2.2.1.2 Traffic Impacts

Peak hour intersection conditions are described in terms of volume-to-capacity (V/C) ratios, with corresponding LOS. LOS ratings are based on an A through F system and provide qualitative descriptions of travel delay and congestion at intersection locations. LOS A indicates free-flow conditions with no delay, while LOS F indicates highly congested conditions, with excessive delays and extensive queuing.

The General Plan of the City of Dublin requires that the City make a good faith effort to maintain at least LOS D (i.e., V/C < 0.901) on all arterial segments of, and at the intersections of, routes of regional significance (General Plan Circulation and Scenic Highways Guiding Policy F).

The City has compiled a list of roadway improvements to address traffic impacts associated with a "buildout" scenario, which includes approved and planned development projects in Dublin. Geometric configuration assumptions for each of the intersections (existing and planned) in the Proposed Action are based on the roadway improvements recommended on pages 13 and 14 of the City of Dublin's Phase I Traffic Study for the Proposed Parks Reserve Forces Training Area.

Appendix A, Table 4-11 summarizes the results of the intersection LOS analysis (detailed calculations are provided in Appendix F). Under the Proposed Action, 12 of the 16 intersections are expected to operate at LOS C or better in the AM and 11 of the 16 intersections to operate at LOS C or better in the PM. The following 4 intersections are expected to operated at LOS D and E or worse in the AM peak hour: Dougherty Road/Dublin Boulevard (LOS E) , Dougherty Road/I-580 WB ramp (LOS D), Dublin Boulevard/Hacienda Drive (LOS D), and Hacienda Drive/I-580 WB ramp (LOS D). Five (5) intersections are expected to operate at LOS D and E or worse in the PM peak hour: Dougherty Road/Dublin Boulevard (LOS E), Hopyard Road/I-580 EB ramp (LOS D), Dougherty Road/Amador Valley Boulevard (LOS D), Dublin Boulevard/Hacienda Drive (LOS D) , and Hacienda Drive/I-580 WB ramp.

The only intersection expected to operate below the City of Dublin's LOS standard is Dougherty Road/Dublin Boulevard. According to City staff, physical constraints limit the feasibility of improving capacity at this intersection. Based on preliminary traffic modeling, there would be cumulative traffic deterioration at key intersections adjacent to Camp Parks regardless of this project attributable to: traffic generated by the City's approved and planned projects, population growth, and secular increases in VMT per person. The City is particularly concerned with Dublin/Dougherty, which is currently subject to poor LOS at peak times of day.

The majority of the added traffic through the transportation network by the Proposed Action is attributable to Dublin Crossing, which would generate a significant number of outbound trips in the AM peak and inbound trips in the PM peak onto an already overtaxed system. Most of this traffic would be loaded onto the City's only east-west arterial, Dublin Boulevard, and the two north-south arterials connecting to I-580, Dougherty Road and Hacienda Drive. The designation of a Central Parkway through Dublin Crossing (Appendix B, Figure 2-3) diverts some east-west traffic off Dublin Boulevard. However, Central Parkway would not function as a high-volume alternative to Dublin Boulevard because it would end at Dougherty Road. Heavy peak traffic volumes along Dublin Boulevard would contribute to operating conditions at Dublin Boulevard/Hacienda Drive being below the City of Dublin's standard.

Relocation of the Main Gate to Dougherty Road and Amador Valley Boulevard would also result in some increased traffic along Dougherty Road and Amador Valley Boulevard. It should be noted, however, that the volume of traffic rerouted to the proposed western Main Gate would represent less than 2 percent of the total added traffic from the Proposed Action. The remaining 98 percent of the total added traffic would come from Dublin Crossing. The Proposed Action would result in LOS D in the PM peak hour for the intersection of Dougherty Road and Amador Valley Boulevard, which is acceptable to the City's LOS standard.

Direct and indirect impacts associated with implementation of the Camp Parks Master Plan and the development of Dublin Crossing would be greatest under the Proposed Action because Dublin Crossing would result in increased AM and PM peak traffic,

leading to deterioration of levels of service at several intersections throughout approaches to the southern Cantonment area.

4.9.2.2.1.3 Other Impacts on Access

The mixed-use character of the "urban village" concept proposed for Dublin Crossing is designed to promote multimodal access to open space, retail, and commercial destinations that would be developed within the southern Cantonment Area. The transportation system would include amenities such as a system of bikeways and trails that connect open spaces and parks to residential areas and shopping. A positive impact of the Proposed Action would be an enhanced internal circulation system, which would offer quality non-automobile-based modes of travel.

Also, the planned access point to Dublin Crossing via Iron Horse Parkway would facilitate both pedestrian and bicycle access to and from the Dublin/Pleasanton BART Station. Given the general grid orientation of the proposed street network, a local transit circulator route has the potential to provide extensive transit connectivity to locations throughout Dublin Crossing, the BART complex, and the greater City of Dublin.

4.9.2.2.2 Comparison of Other Alternatives

Under Slow Growth or No Action Alternatives, direct and indirect traffic impacts associated with Camp Parks would be substantially less severe and occur at fewer intersection locations, since no development plans for Dublin Crossing has been planned under either of these alternatives. Approximately 98 percent of the traffic impact modeled above for the Proposed Action is a result of the development of Dublin Crossing. Thus, under the Slow Growth or No Action Alternatives, only two percent of the traffic impacts identified are expected to occur. However, based on preliminary traffic modeling, the City's buildout would probably result in poor LOS at key intersections adjacent to Camp Parks regardless of this project attributable to: traffic generated by the City's approved and planned projects, population growth, and secular increases in VMT per person. The City is particularly concerned with Dublin/Dougherty, which is currently subject to poor LOS at peak times of day.

4.9.2.3 Proposed Mitigation

In October 2003, the City of Dublin performed an analysis of traffic improvements needed to mitigate the impacts of the proposed Dublin Crossing development. While the land use characteristics and development intensities in the proposal have since changed, the trips generated by implementation of the Camp Parks Master Plan and development of Dublin Crossing would still result in direct and indirect negative impacts to the LOS at several major intersections in the local transportation network and a need for the mitigation measures proposed.

The City of Dublin's Phase I Traffic Study for the Proposed Camp Parks Development calls for the project applicant to bear responsibility for several capacity improvements that would be needed to mitigate the direct and indirect traffic impacts attributable to trips

generated to and from Dublin Crossing and Camp Parks. These specific mitigations include capacity improvements at the following intersections, per the detailed descriptions on pages 22-26 of the Phase I Traffic Study: Dougherty Road/Central Parkway, Arnold Road/Central Parkway, Dublin Boulevard/Iron Horse, Hopyard Road/I-580 Eastbound offramp, Westbound Hacienda Crossing at Hacienda Drive, Dougherty Road/Amador Valley, Arnold Road/Dublin Boulevard, and Hacienda Drive/I-580 Eastbound offramp. These mitigation measures would be implemented cooperatively with the developers of Dublin Crossing.

Capacity improvements at Dublin Boulevard/Dougherty Road are also recommended on pages 158, 159 and 167 of the Transit Center Draft EIR and page 3.6-17 of the East Dublin Properties Draft Supplemental EIR. In addition to these specific improvements, signal operation mitigations would be considered the approaches to Dougherty Road/Scarlett Drive and Dougherty Road/Central Parkway intersections, which would be spaced close together under the proposed street configuration. These mitigation measures would be implemented cooperatively with the developers of Dublin Crossing.

In addition to the intersection improvements, there is the potential that street segment improvements may also be necessary. This could include widening Dougherty Road from four lanes to six lanes between Houston Place and Amador Valley Boulevard, the extension of Scarlett Drive from Houston Place to Dublin Boulevard, and widening of Arnold Road from two lanes to four lanes between Dublin Boulevard and Central Parkway. The potential widening of these specific arterials could be warranted if the traffic on those arterials exceeds the City of Dublin's thresholds for maximum allowable traffic. If the threshold is exceeded then the arterial would potentially need to be upgraded to the next level, though there may be exceptions that would need to be discussed with and approved by the City of Dublin. These mitigation measures would be implemented cooperatively with the developers of Dublin Crossing.

4.10 NOISE

Noise generated by activities at Camp Parks and in the surrounding areas was evaluated under the Proposed Action, Slow Growth, and No Growth Alternatives. Since the noise contours generated for the site extend across the northern Cantonment Area, Training Area, and southern Cantonment Area, these areas will be discussed as one. The ROI for noise impacts includes the existing noise contours and adjacent area that could be affected if activities would introduce accelerated noise beyond existing noise contours.

4.10.1 Military Noise

Military noise is generated at Camp Parks from training activities and occasional helicopter flights, as well as from vehicular traffic and maintenance activities.

4.10.1.1 Impact Types

The types of noise impacts were identified by projecting the Environmental Systems Research Institute (ESRI) shape files of the noise contours measured at Camp Parks (75

dB DNL, 65 dB DNL, 87 dPB, and 104 dPB) against spatial data depicting Camp Parks and the local communities adjacent to it (Nakata 2002). All of the contours are totally encompassed by Camp Parks property; however, the 87-dPB contour from the Camp Parks and the Alameda County firing ranges extends beyond the installation boundary on the east-southeast into an area that is adjacent to or part of the FCI.

One overriding fact in the area is the very rapid population growth in what was a rural area when Camp Parks was established. Contra Costa County's population increased nearly ten-fold between the beginning of World War II (1940 census) and the most recent census (Census Bureau 2000). The county's mean population density is now over 1,300 people per square mile and is much higher in some census blocks immediately adjacent to Camp Parks. Therefore, the likelihood of significant numbers of people being affected by noise, regardless of mitigation measures being taken, is considerably higher than it was when the installation was established. Figures 3-18 and 3-19 depict the subject noise contours.

While human responses to noise are inherently subjective, at certain levels of noise (either sustained or, at a significantly higher level, acute) annoyance can become significant. Army criteria for noise analysis and management incorporate these thresholds. Specifically, Army Noise Zones I and II represent those areas for which the Army may consider restricting facility development and correspond to the values and criteria expressed in Federal guidelines (e.g., Federal Interagency Committee on Noise). These zones correspond, respectively, with the 65-and 75-dB noise contours, and land uses proposed under the Master Plan do not conflict with these zones. The 87-dPB and 104-dPB peak value contours do not overlie any part of the installation currently developed or proposed for development. The 87-dPB and 104 dPB peak values are considerably below the 115 dB threshold of significance adopted by Army noise program requirements (Luz 2001). Also note that each of these peak noise contours falls at least an order of magnitude below the 65 dB (DNL) threshold for long-term, noise related land use restriction because the latter threshold is an average value.

4.10.1.2 Impact Occurrence

4.10.1.2.1 Impacts Anticipated Under the Proposed Action

Under the Proposed Action, the current installation noise management policy would continue, since the Updated Master Plan generally recognizes and conforms to Army noise guidelines. The Updated Master Plan includes no proposed changes in the location, types, or frequency of operational or training-related activities associated with helicopter flights, weapons ranges, or other activities associated with potentially significant noise levels. While helicopter activity is expected to continue and may independently increase throughout the duration of the Proposed Action, the anticipated frequency of flights and distributed flight patterns over Camp Parks was not enough to establish specific Zone II Noise Contours (between 65 and 75 dBA) for these operations as part of the 2005 Camp Parks Environmental Noise Management Plan (USACHPPM 2005). Nevertheless, helicopter noise may still be heard across Camp Parks and within the proposed Dublin

Crossing area but at levels well below established Army and City of Dublin (60 dBA) acceptable noise levels. No unacceptable noise exposure from small arms training ranges would extend into either the northern or southern Cantonment areas and would not impact the Dublin Crossing area. No ongoing or future operational or training-related noise levels at Camp Parks are anticipated to exceed the City of Dublin accepted 60 dBA noise level for residential land uses within the proposed land exchange area and therefore no additional noise mitigation measures are required as part of the Proposed Action. Implementation of the Proposed Action would not have significant impacts on the existing Camp Parks noise environment.

The additional consideration is whether the Proposed Action would be impacted by the existing or future Camp Parks noise environment. A comparison of the existing noise contours (Appendix B, Figure 3-18 and Figure 3-19) with the proposed Future Development Plan (Appendix B, Figure 2-2) shows that redevelopment of the northern Cantonment Area would not be constrained to any degree by noise impacts. This is because areas adjacent to the weapons range are retained as a buffer and the adjacent areas at the north end of the northern Cantonment Area are proposed for industrial and maintenance uses, such as the DEP MED (outdoor) Training Area, the DSRSD compound, and warehouse, maintenance, or storage facilities. Redevelopment activities within the southern Cantonment Area and Dublin Crossing would be well clear of the least intrusive noise contour developed by the Army and would not be restricted due to ongoing or future operational or training-related noise levels at Camp Parks. Existing or future noise level impacts on these and all other components of the Proposed Action would not be significant.

4.10.1.2.2 Comparison of Other Alternatives

Similar comments can be made regarding implementation of the Slow Growth Alternative, except that the southern Cantonment Area land exchange would not be a consideration. This alternative does not create significant noise compatibility concerns; however, the lack of a defined funding mechanism could create pressure for development on the installation that is less-than-optimal with regard to noise.

Potential noise impacts associated with the No Action Alternative are the same as those for the Slow Growth Alternative, except that the pressure for less-than-optimal development on the installation could be exacerbated by the lack of defined vision for redevelopment.

4.10.1.3 Proposed Mitigation

Under the existing situation, several facilities and bivouac areas are within 87-dPB peak contour. This current situation is not considered significant, and there is no indication that it would be revised under the Proposed Action or the Slow Growth Alternatives. Camp Parks would make use of the current noise contours to better locate activities in the Training Area under any of the alternatives.

Though noise impacts on or from any one of the three alternatives are not expected to be significant based on current standards, noise may still be an annoyance to individuals within and adjacent to Camp Parks and there could be complaints about noise. To mitigate potential complaints about noise that may occur in the future, Camp Parks continues to implement a program of outreach to citizens in the communities surrounding Camp Parks to explain the types of military activities that generate the noises and help alleviate their sense of annoyance.

4.10.2 Other Noise Impacts

The other primary source of noise on and near Camp Parks is traffic. The sources and volume of traffic and their potential mitigation are discussed in Section 4.9.2. Any mitigation measures that reduce the volume of traffic in the vicinity of Camp Parks would also reduce the noise resulting from traffic. Camp Parks is a minor contributor to the overall traffic volume that converges on I–580 and I–680; therefore, any mitigation measures employed by Camp Parks would contribute toward minimizing traffic-related noise, but could not mitigate this impact on their own.

Any one of the three alternatives would contribute to additional traffic volume, and therefore noise, from expanded operations within the Cantonment Area. The contribution to traffic volume and noise would be more gradual under the Slow Growth Alternative and would be less extensive under the No Action Alternative. The Proposed Action could also result in a greater, indirect contribution to traffic volume and noise as a result of subsequent development of southern Cantonment Area.

Even under the Proposed Action, where the increase in traffic noise has the potential to be greatest, the volume of traffic might not be greater than previously projected in the vicinity of Camp Parks because of recent downward economic trends (Section 3.9.2). In addition, traffic from Camp Parks would be joined by traffic from the numerous existing and planned developments in the area since Camp Parks is along the access route from many locations to I–580 and I–680. As a result, the contribution to traffic noise from implementation of any one of the three alternatives is expected to be subsumed by and inseparable from traffic noise from other sources. Therefore, impacts from traffic noise under any one of the alternatives are not expected to be significant.

4.11 NEARBY SPECIAL MANAGEMENT AREAS

Potential impacts on special management areas such as regional parks, from the Proposed Action and its alternatives were assessed for this EIS. The ROI for nearby special management areas include parks, wilderness areas, and preserves located in the vicinity of the installation that likely contain similar vegetation communities and wildlife populations. An impact on a special management areas would be considered adverse if the resource values that led to the designation of these areas as special management areas were impaired. An impact on special management areas would be considered significant if its resources were affected to the point where the area no longer meets the criteria for designation as a special management area.

Because there are no special management areas within the boundaries of Camp Parks, impacts from the redevelopment of the post would be indirect. The area to be developed is currently lightly developed and ruderal and does not provide high quality habitat for wide ranging species. Therefore such species are not likely to be displaced into nearby special management areas.

The Proposed Action is the only alternative that includes the land exchange as a component. Since this southern Cantonment Area would be developed under the Proposed Action, it would have the greatest potential for indirect impacts on special management areas. Impacts from the Slow Growth Alternative and the No Action Alternative, respectively, would be increasingly less likely because they would be redeveloped more gradually and less densely. The impacts from any one of the three alternatives are not expected to be significant and would not be mitigated.

4.12 VISUAL AND AESTHETIC RESOURCES

This section addresses the visual and aesthetic impacts that are expected to occur as a result of the Proposed Action and its alternatives and determines whether the facilities proposed on Camp Parks would be compatible with the visual character of their setting. To evaluate impacts on visual and aesthetic resources, the designated land use categories (Appendix B, Figure 2-1) and the type, level, and location of construction under the Proposed Action and its alternatives were compared to the existing visual resources and landscapes that would be affected.

The results of this comparison are presented below in three subsections. Section 4.12.1 identifies the types of impacts that may occur to visual resources. Section 4.12.2 discusses the expected occurrence of these impact types geographically Section 4.12.3 presents mitigation measures that are proposed as integral to implementation of each alternative and that would be among the commitments made in the Record of Decision for the preferred alternative. The specific impacts discussed in the first two sections are based on activities expected to occur under the Proposed Action, as well as on the condition of visual resources that have been observed at Camp Parks during the EIS analysis. A comparison of impacts among the three alternatives is presented at the end of each component of Section 4.12.2.

The ROI for visual and aesthetic resources includes the entire area within the Camp Parks boundary, as observed by the various Viewer Groups defined in Section 3.12.2.1 (Motorists (M), Residences I, Commercial/Office Tenants I, and Installation Occupants (I)). Given that no development would occur outside of the Camp Parks installation, the ROI does not extend beyond the Camp Parks boundary. However, the viewer groups surround Camp Parks from the outside.

4.12.1 Impact Types

Visual impacts are discussed in terms of how facilities of the Proposed Action and its alternatives would affect the existing visual setting. Adverse and/or beneficial impacts to visual or aesthetic resources occur if project actions result in any of the following:

- **Landform Quality –** changes to the existing natural or man-made landform.

- **Visual Resources –** changes to the physical resources, including native vegetation, introduced landscaping, and the built environment, that make up the character of the area.

- **Visual Intrusion/Privacy** – the creation of direct views from the Camp Parks installation into previously private spaces.

Impacts to visual or aesthetic resources are addressed because these resources are a component of the human environment. In addition, specific federal or state visual regulatory requirements apply to properties that are designated historic under Section 106 and/or eligible for listing in the National Register, and the City of Dublin would review development plans at the Camp Parks installation to ensure compliance with any applicable zoning or development code requirements. Further, development under the Master Plan would comply with the Camp Parks Installation Design Guide (IDG) and all applicable land use and landscaping guidelines (Nakata 2002).

Adverse impacts to visual or aesthetic resources would be considered significant if they result in:

- Visual intrusion or privacy impacts to adjacent residential neighborhoods.

- New development that reduces existing screening and/or current horizontal and vertical distance views currently available to local viewer groups.

- Substantial changes in land use resulting in a deterioration of present visual quality.

- Substantial loss of vegetation, open space, or natural character of the landscape.

- New development resulting in buildings that do not reflect model building examples as defined in the IDG.

- New development that does not maintain the overall visual theme and unique visual districts as defined in the IDG, including site design that does not respond to context, climate, and topography.

- New development that does not establish an impressive and inviting environment for visitors, trainees, and assigned occupants.

- New development that impacts Camp Parks' cultural resources including, but not limited to:

    - The Camp Parks front gate sign, which is eligible to be listed under the NRHP.

- Sites designated as known NRHP-eligible cultural resource sites.

Beneficial impacts to visual or aesthetic resources would occur if project actions result in an increase in natural open space similar to that located in the high grassland areas of the Camp Parks Training Area because this area adds a high quality of visual and aesthetic enjoyment to local viewer groups.

The degree of adverse impact and whether the adverse impact is significant depends on the level of disturbance and its association with local identified viewer groups, the importance of the affected visual and aesthetic resource, and the proportion of the visual and aesthetic resource affected relative to its overall occurrence within Camp Parks. The degree to which beneficial impacts are significant depends on their magnitude relative to the needs of the local viewer groups and their desires to maintain high-quality views and landscapes. The evaluation of significance for both adverse and beneficial impacts uses existing conditions as a benchmark.

Direct impacts to visual and aesthetic resources include modification or inhibition of direct views of high quality resources and visual intrusions into previously private spaces. These impacts occur from construction of new development in natural, open space lands or development of new facilities and increased human activity in developed areas, especially in locations near adjacent residential neighborhoods. These direct impacts are permanent, as views of high-quality visual resources are replaced by physical structures and associated development. Direct impacts to previously private spaces adjacent to the project can be temporary if screening methods or sensitive architectural treatments are successful in restoring adjacent privacy.

Indirect impacts to visual and aesthetic resources result from activities that initiate a chain of events or a process that eventually creates impacts to the resource. Indirect impacts can be temporally and spatially removed from the activity responsible for the impact, but are related to the activity through a process of cause and effect.

Activities related to construction of new facilities, expanded use of existing facilities, and increases in human activity can also result in indirect impacts to visual and aesthetic resources. This can occur if the actions implemented alter the visual/aesthetic character such that the present and future character of the surrounding community as a whole is altered.

4.12.2 Impact Occurrence

4.12.2.1 Impacts Anticipated Under the Proposed Action

4.12.2.1.1 Site-wide

Non-native grassland open space is the dominant landscape at Camp Parks, occurring throughout the Training Area. Impacts within the Training Area would occur where new training activities take place and where increased or intensive human activity is anticipated; increases in training are not anticipated to be significantly different than

current military training activities. Within the Cantonment Area, views of ruderal grassland areas would be impacted within all land use categories where construction activities are proposed and where increased or intensive human activity is anticipated.

4.12.2.1.2 Northern Cantonment Area

Direct impacts to this highly visible portion of the post would occur within each land use category (Appendix B, Figure 2-1) at locations of proposed building sites and roadways (Appendix B, Figure 2-2). Indirect impacts could occur throughout each land use category where construction activities can change views of these landscapes from local viewer groups.

Presently, views of the Cantonment Area from surrounding locations are characterized by scattered buildings, broad areas of pavement, a grid of roads, and low-growing vegetation in vacant areas, many of which were previously occupied by buildings. The buildings date from the Korean War era and the 1970s. The few contemporary buildings on the installation (Battle Projection Center, Regional Training Site Intelligence building, and Regional Training Site Medical building) are scattered across the northern Cantonment Area. Sidewalks and street surfaces within the installation are generally in visible disrepair. Trees and shrubs are sparse, and landscaping of roadways, intersections, pathways, and the building perimeters (except around newly constructed buildings) is generally limited. Views of the Cantonment Area from surrounding locations, and from within the installation, lack visual interest and unity.

The northern Cantonment would undergo substantial redevelopment under the Proposed Action. The character of the land would change from uncoordinated, scattered facilities to coordinated, new facilities. Redevelopment that is consistent with local ordinances and Camp Parks IDG guidelines could improve the visual character of the category and result in direct beneficial impacts, especially if it is compatible with community context and landscape treatments in adjacent neighborhoods west of the installation.

New buildings that would be visible to the surrounding community are described in Section 2.1.1.2 of this document, summarized in Appendix A, Table 2-2, and illustrated in Appendix B, Figure 2-2. The potential sequencing of facility construction is described in the Execution Plan. Nearly forty new facilities would be constructed within the northern Cantonment Area. Key facilities from a visual/aesthetic perspective would be the six buildings centered in a campus-like setting between 5th and 8th Streets and between Davis and Hutchins Avenues, the ANG complex to the east of this campus area, the RCI complex to the west, and the administration and support facilities to the northwest near the main entrance to the installation. The classroom buildings would be two to three stories tall, and billets would be three and five stories tall. These buildings would be especially prominent because of their administrative and training uses; as such, they would be well landscaped. These relatively tall buildings would intrude into views from the residential area west of Dougherty Boulevard and be discordant with their residential character. Although, they would be no taller than the Sybase building just east of Camp Parks, they would bring commercial-type buildings closer to residences and

intrude on their views of the Training Area hills to the northwest. This may result in indirect impacts by influencing subsequent facilities to become taller and more commercial in nature. Occupants of these buildings and of the buildings in the multiuse development proposed as Dublin Crossing will likely be able to see (and be seen by occupants of) the one-to-two story single-family houses in the RCI development. The facilities in the two portions of the Housing Land Use Category and in Dublin Crossing are expected to be visually/aesthetically compatible.

However, even under the Proposed Action, the visual/aesthetic character of the northern Cantonment Area would change gradually as new facilities are constructed, occupied, and old buildings are demolished.

Direct impacts could result from construction activities would generally be short-term, subsiding once construction activities cease. Indirect and permanent impacts to the existing character could include an increased number of structures and the increase in human activity in the vicinity of the proposed structures, as viewed by the neighborhoods west of the installation. Without effective mitigation, short-term construction-related activities in the northern Cantonment could create visual intrusions on post that might be noticeable to nearby neighboring communities along the western edge of the installation. However, existing berms along Dougherty Road would reduce the potential for this impact.

Under the Proposed Action, visual resources presently associated with the open space areas are visible from the neighborhoods adjacent to the western boundary of the Camp Parks installation. One of these areas is the berm along the east side of Dougherty Boulevard that visually screens Camp Parks from the residences on the west side of that road. It would be broken by the new entrance road, but would otherwise continue to serve its current function. At the southern end of this open space, the setting of the historic Camp Parks sign (a retained facility) would likely be enhanced, providing beneficial visual/aesthetic impacts. The other open space area buffers the northeastern portion of the industrial area and the northern end of the operations area from the Training Area. The original commander's house, one of the buildings to be retained, sits at the southeast end of this open space. Refurbishment of this home is also expected to provide beneficial visual/aesthetic impacts. No other direct impacts to these open spaces are anticipated because there is no other construction anticipated within this category. However, indirect impacts to the visual quality of these natural areas could occur if the large warehouse buildings in the industrial area (P015, P016, P017, P018, and P019) extend above the berm and block views of the easternmost open space areas for viewer groups on the western edge of the installation.

Long-term benefits to viewer groups working or living on the installation could be expected to occur if this area continues to be used as "open space." If left to develop naturally, the present wetland (#27) could provide a unique outdoor space where habitat would be essential to species that are displaced from construction activities in other areas of Camp Parks.

4.12.2.1.3 Training Area

4.12.2.1.3.1 DSRSD Land Use Category

The DSRSD Land Use Category contains a large amount of natural, grassy open space. While DSRSD does not currently have a finalized development plan regarding the intensity, specific use and timeline for the development of the proposed location for the Field Operations Division of DSRSD, the Proposed Action includes the anticipated construction of a storage area, a parking facility, and a new roadway along the existing dirt road alignment. The facilities would not entail a substantial impact to viewer groups. However, because these facilities would be accessible from Dougherty Road, activities associated with DSRSD would be more apparent to viewers on the west side of Dougherty Road and intrude into their view as well as their activity space.

4.12.2.1.3.2 Training Area Outside of DSRSD Land Use Category

The Training Area at Camp Parks contains a majority of the high-quality views and open space features located on the Camp Parks installation. The rolling grassy hills north of 12th Street in the Training Area are the most dominant visual element on Camp Parks as viewed from surrounding areas and from within the installation. Existing development within this area is limited to the Range Complex, which is hidden from viewers in surrounding roadways and public areas by hills and berms. In contrast to the Cantonment Area, the hills of the Training Area provide high-quality views from surrounding areas and from within the installation. Their high visual/aesthetic quality are due in part to their natural open space character and in part to their topography, since most of the Training Area is considerably higher in elevation than the Cantonment Area or residential areas adjacent to Camp Parks.

Some direct impacts may occur to this visual resource as a result of an increase in training activities that would take place variably and at unspecified locations. Direct impacts to this high-quality and important visual resource would be insignificant, as the character of the rolling grasslands would be left intact.

4.12.2.1.4 Southern Cantonment Area

Under the Proposed Action, it is anticipated that the southern Cantonment Area would be completely developed with a mixture of commercial and residential structures and associated infrastructure. This action would likely result in direct impacts to existing views for all viewer groups. All existing ruderal grassland is expected to be removed. The townhomes and multi-family dwellings that comprise a majority of the residential structures (89 percent of the dwelling units under the Charrette Alternative 5 scenario) are expected to be multistory. Like the AT billets in the northern Housing Land Use Category, these structures, and the retail and office space that are also a component of the plan, would bring commercial-type buildings closer to the existing residential areas. These changes in character may result in indirect impacts by influencing the subsequent development in this area.

Impacts to surrounding viewer groups, as well as those located on the installation, would vary depending upon the height and density of the proposed structures. The centralized park facility proposed at the heart of the southern Cantonment Area would provide beneficial impacts to viewer groups traversing Dublin Boulevard, and to resident and transient viewers in existing and planned facilities, including the BART station, on the south side of this road.

Beneficial impacts would also be realized. These would result from demolition of buildings currently existing in the southern Cantonment Area (Appendix A, Table 2-2), the demolition of the NASA-owned warehouse (Building 121), and the relocation of the Power Substation.

4.12.2.2 Comparison of Other Alternatives

Impacts resulting from the implementation of the Slow Growth Alternative and No Action Alternative are anticipated, but would differ in timing and magnitude from those anticipated under the Proposed Action.

The Slow Growth Alternative would have impacts similar to those identified for the Proposed Action, as the vision for Camp Parks under this alternative would be similar to that of the Proposed Action. However, the impacts would generally be less extensive because development would be staged, occurring over a much longer time period. In addition, the land exchange involving southern Cantonment Area would not occur, allowing for less dense development of the Cantonment Area.

The No Action Alternative would result in the lowest level of impact because the level of change would not only be gradual, but would be less extensive. Under the No Action Alternative, there would be no comprehensive plan or overall vision for Camp Parks. Facility upgrades would be subject to budgetary constraints, which would substantially limit the level of development within Camp Parks. In addition, the land exchange involving southern Cantonment Area would not occur, allowing for less dense development of the northern Cantonment Area.

The Slow Growth Alternative and No Action Alternative would not include the exchange of the southern Cantonment Area and Dublin Crossing would not be developed. Therefore, the level of impact discussed above would not occur. Under the Slow Growth Alternative, facilities currently present in the southern Cantonment Area would be gradually removed and their occupants reestablished in the new facilities that would be built according to the Master Plan over time. However, the southern Cantonment Area would remain an opportunity site and some level of impact to the views of open space in this area would occur in time, as Camp Parks construction activities would eventually take place in this area. The No Action Alternative would result in the lowest level of impact to present views because of the low level of construction and human activities anticipated under this alternative.

The above discussion of impacts in the Training Area is based on activities anticipated under the Proposed Action. Impacts resulting from the implementation of the Slow

Growth and No Action Alternatives are anticipated, but would differ in magnitude from the Proposed Action. Because development would be less extensive under the Slow Growth Alternative and the No Action Alternative, the intensity and duration of training activities would also likely be less. This would reduce the level of impact to the existing views of open space and natural landscapes, by slowing the activity levels associated with the Training Area. The No Action Alternative would result in the lowest level of impact because only limited development is anticipated under this alternative.

4.12.3 Proposed Mitigation

Where impacts, especially significant impacts, are anticipated, specific mitigation measures could be implemented. Mitigation is generally warranted where the proposed project alternatives would result in the following:

- Removal of features that are important to a community's visual character, such as a mature stand of trees, landscaping, or historic structures;
- Disruption of a locally or regionally significant view such as the view from a residence towards a skyline, park, or open space;
- Placement of a built structure that presents undesirable views from the surrounding community, or from previously private spaces;
- Disruption of the view from a community setting such as parklands or nearby schools;
- Project design features that do not conform to city zoning ordinances.

Mitigation measures for the above instances could include, but are not limited to, avoidance, screening, habitat restoration or creation, view-compatible facility color schemes and design, suitable landscaping, and implementation of BMPs that could further protect quality visual and aesthetic resources.

The Camp Parks design theme identifies the appropriate visual character to be established and promoted during the future construction of the academic and training campus. The theme outlines a basic unifying motif that links the existing image determinants of the site and creates a comprehensive framework within which all future improvements are to be developed. It is derived from a visual survey and model building inventory by visual district. The installation visual theme includes an overall campus motif along with model standards included in established Camp Parks visual districts (Nakata 2002).

In addition, the City of Dublin has instituted a Development Elevation Cap at an elevation of 770 feet. Areas at or below this elevation and within City limits or adopted spheres of influence are designated as areas of potential urban development. The 770-foot elevation reflects the highest elevation that can reasonably be provided with water service and therefore restricts development dependent upon City infrastructure according

to the adopted General Plan, Eastern Dublin-Specific Plan, and the Dublin San Ramon Services District, dated June 1997.

The area of urban development potential represents a "community of interest" where public services, schools, commercial services, and transportation linkages serve to interconnect the various areas of Dublin. The physical characteristics of this area (i.e. low rolling hills, flat lands, creeks, and proximity to major transportation links such as freeways, major streets, and BART) enhance the sense of community and association with Dublin. Almost all of the development areas within the Development Elevation Cap are within the adopted Plan. Several smaller areas to the north and near the Contra Costa County line are outside the adopted Plan area, but within the City's adopted sphere of influence as defined by the Local Agency Formation Commission. The City of Dublin has defined a process for phased and appropriate urban development of these areas through the adopted Plan. Logical extension of public services and infrastructure in these areas are to be accomplished in an orderly and environmentally sound expansion, with the 770-foot elevation limitation establishing the logical boundary for such extensions. For areas such as the Camp Parks exchange parcel, development of property with an approved urban land use designation under adopted City Plans would be considered consistent with the Development Elevation Cap as long as the development complied with all other applicable plans and policies.

4.13 HEALTH/SAFETY AND HAZARDOUS SUBSTANCES

The hazardous substances present or suspected to be present at various locations at Camp Parks may impact the type and location of construction under the Proposed Action and its alternatives. These potential impacts were evaluated for each designated land use category (Appendix B, Figure 2-1). Section 4.13.1 discusses the types of impacts that may occur at sites with hazardous substances. Section 4.13.2 discusses the expected occurrence of these impact types geographically. Section 4.13.2 presents mitigation measures that would be among the commitments made by Camp Parks to mitigate the potential impacts from hazardous substances on the Proposed Action or its alternatives.

The Proposed Action can have beneficial impacts on the hazardous substance site in that the hazardous substances would be identified, contained and/or cleaned up to site specific clean-up levels based upon recommendations from CALEPA prior to development, which reduces the potential for human and ecological receptors to be exposed to hazardous substances. The hazardous substance sites can impact the Proposed Action by delaying development until the hazardous substances are removed, preventing certain types of development at a site due to the nature/extent of the contamination, or posing a health risk to humans or ecological receptors at the site or on adjacent sites before or during site remediation.

To determine the potential significance of impacts to the Proposed Action from hazardous substance sites, the following assumptions were made:

- All cleanup activities would be conducted according to current local, state, and federal laws and regulations.

- All cleanup contractors would use standard industry practices for conducting cleanups; decontaminating equipment; storing, transporting, and disposing of wastes; ambient air monitoring; and worker protection.

- All sites can be cleaned up to the site-specific clean-up standards which are established in coordination with the CALEPA for the planned type of facility (residential housing, classroom, parking lot).

A significant impact is one that adversely effects adjacent properties (e.g., by contaminating the adjacent property), directly or indirectly contributes to a potential public health hazard, or poses a hazard to protected plant or animal populations.

4.13.1 Impact Types

The potential impacts on the Proposed Action or its alternatives from hazardous substance sites may be direct or indirect.

4.13.1.1 Direct Impacts

Direct impacts to the Proposed Action from hazardous substance sites are caused by activities at the site or in the immediate vicinity of the site, such as excavation; dust generation; and the extent of cleanup activities, which may affect human or ecological receptors. A change in land use at a hazardous substance site may impose more stringent standards for exposure of the people or ecological receptors that would occupy the site. For example, a decision to construct a new residential structure (as compared to an office, industrial building, or open space) at a hazardous substance site may have a direct impact on the construction planned for the site by reducing the concentrations of contaminants allowed to remain in the soil or groundwater at the site—thus increasing the volume of contaminated soil or groundwater that must be treated or removed and the length of time required for the remediation. Demolition of old buildings may also have a direct impact on the Proposed Action. Old buildings may contain hazardous substances such as lead-based paint and asbestos that have to be removed and properly disposed of prior to redevelopment.

To minimize potential impacts from existing hazards, adequate evaluations of the nature and extent of contamination must be completed at the numerous known and suspected hazardous substance locations. Known and potential hazardous substance sites are described in Section 3.13.2. Specific locations in the Cantonment Area are summarized in Appendix A, Table 3-27 and Table 3-28. The resulting evaluations, including consultations with CALEPA and other regulatory agencies, would provide the basis for determining whether additional removal or remedial actions are necessary and the kinds of measures required to prevent or minimize potential exposures to workers, trainees, residents, or other members of the public.

Remedial actions may be completed prior to the initiation of comprehensive redevelopment activities or the two processes could progress simultaneously in specific areas. When ownership of a hazardous substance site would change hands, remedial

measures usually must be completed or an approved remedial system must be operating properly before the transfer can occur. Mitigation measures to reduce or avoid significant adverse impacts, including potential hazardous substance releases or exposures during remediation, must be included in all hazardous substance site remediation plans. Demolition of buildings contaminated with ACM, lead-based paint, or other hazardous substances must be performed in accordance with Department of Defense, State of California, USEPA, and Occupational Safety and Health Administration (OSHA) standards and waste management requirements. Uncertainties in the available hazardous substance site characterization information indicate the potential for discovery of additional releases of hazardous substances during future development, e.g., excavations for building foundations or construction of new water, sewer, natural gas, or other utility lines. These possibilities must be addressed in planning, interagency agreements, and contracts for redevelopment.

4.13.1.2 Indirect Impacts

Indirect impacts are related effects that may occur at locations distant from the hazardous substance site and at times before or after remedial action is performed at the site. Examples of indirect impacts include dust blowing from a work site, off-site truck traffic resulting from removal of contaminated soil and demolition debris, or releases of wastes from trucks during transport. Indirect impacts can be mitigated if cleanup contractors practice good housekeeping and health and safety procedures to minimize or prevent exposures to hazardous substances, prevent releases of hazardous substances during transport, reduce dust from roadways, and schedule transport of demolition debris or other wastes during low-traffic time periods.

4.13.2 Impact Occurrence

Potential impacts on the Proposed Action and its alternatives that may result from hazardous substance sites are addressed in the following sections. Site-wide impacts are considered first, followed by estimates of localized impacts within the northern Cantonment Area, the Training Area, and the southern Cantonment Area.

4.13.2.1 Impacts Anticipated Under the Proposed Action

4.13.2.1.1 Site-wide Impacts

The Proposed Action would generally focus public and regulatory agency attention on redevelopment of both the northern and southern Cantonment Areas. The resulting area-wide assessment and planning for new or expanded uses of the properties would provide strong incentives to address known or potential contamination and remediation issues in an efficient and cost-effective manner. The exchange and redevelopment work might be severely impeded if potential contamination problems are not promptly addressed and adequately mitigated. However, the beneficial impacts of the Proposed Action in reducing the known or potential health, safety, and hazardous substance hazards are likely to be significant.

Implementation of the Updated Master Plan should facilitate a comprehensive and systematic approach to evaluating and cleaning up hazardous substance releases and establishing standardized mitigation requirements. The cost of completing investigations and, where necessary, remediating identified or potential hazardous substance sites under a few contracts and within a few years should be substantially less than the cost of performing the same work in dozens of individual efforts over a longer time period. A quantitative estimate of the expected benefits cannot be developed at this time, due to the unknown extent of contamination and costs of remediation (if any) at each of the known and suspected hazardous substance sites.

4.13.2.1.2 Northern Cantonment Area

The EBS report (USACHPPM 2004a) for the northern Cantonment Area identified two "Type II" locations where petroleum releases were known to have occurred (Buildings 200 and 312), two Type IV locations where all necessary remedial actions have been completed (Buildings 331 and 334), two Type V locations where ongoing remedial measures were underway (the Former Fire Training Area and the Arsenic Drum Disposal Site), and 26 Type VII sites where Phase II (confirmation) hazardous substance investigations were recommended, as summarized in Appendix A, Table 3-27.

The Phase II sampling recommended in the EBS report has been implemented. Subsequent studies in the northern Cantonment Area have been performed on the Oakland Exchange parcel (CH2Mhill 2005a); the Former Fire Training Area (CH2Mhill 2005b), which is largely within the CA ARNG parcel; and in the RCI housing parcel (SCS 2005b, SI Group 2004a, SI Group 2004b). These studies are discussed below by area. As restoration continues, additional sites may be added if additional hazardous substance sites (e.g., abandoned USTs, fuel piping, or septic tanks) are discovered during future investigations or development work.

One potential hazardous substance problem that has been identified in a number of locations throughout Camp Parks is the occurrence of elevated concentrations of chromium and arsenic (above ESLs) in surface soils. In some instances these elevated concentrations are likely to be naturally occurring based on the results from the Camp Parks soil metals background survey (CH2Mhill 2003).

The geographic distribution of the six proposed land use categories in the northern Cantonment Area is shown in Appendix B, Figure 2-1. The known or suspected hazardous substance sites within each parcel within each designated land use are summarized in this section, followed by a discussion of individual proposed facilities that may be impacted by those hazardous substance sites.

4.13.2.1.2.1 Operations Land Use Category

Under the Proposed Action, the Operations Land Use Category includes most of the south-central and southeastern portions of the northern Cantonment Area. The eastern part of this category includes two parcels that are to be developed and occupied by the U.S. Army Reserve units from the closing Oakland Army Base and the California Army

National Guard (CA ARNG). NEPA EA documents have been prepared for the parcel on which the CA ARNG Organizational Maintenance Shop and Readiness Center (OMS/RC) are being developed and for the Oakland Army Reserve parcel. These two parcels are addressed only to include hazardous substance sites not previously accounted for in the completed EA documents and to provide references to the sites addressed in those documents. The second CA ARNG parcel (identified as "Future Lease" below) is not addressed in the completed EA and is therefore included in this assessment of the Operations Land Use Category.

4.13.2.1.2.2 California Army National Guard OMS/RC

Remedial investigations of the Former Fire Training Area, described in Section 3.13.2.12, have been completed and contaminant levels present in the surface soil and groundwater did not warrant further remediation. A no further action letter from the CALEPA has been received and all monitoring wells properly destroyed. Construction at this site was addressed under a previous EA (USACE 2002a). To reduce the potential for exposure of construction workers to hydrocarbons and other contaminants present in the soil during excavation or other earthwork at the site, workers should have appropriate hazardous substance safety training. This training would reduce potential health and safety risks to the workers to acceptable levels. No significant impacts from future use of hazardous substances in the Maintenance Shop are predicted if the CA ARNG follows applicable federal, state, and local pollution prevention standards and adequate oil, fuel, battery, and wastewater containment and/or treatment requirements.

The Final EBS for the northern Cantonment Area (USACHPPM 2004a) described additional sites in the OMS/RC area that were not discussed in the EA. The Final EBS discusses the Arsenic Drum Disposal Site (described in Section 3.13.2.8), located near the northeast corner of Monroe Avenue and 7th Street, which is within the OMS/RC area, as well as five other small areas where release, disposal, and/or migration of hazardous substances may have occurred and where required actions have not been implemented. These areas are near former Buildings 961 (F961), 980 (F980), and 982 (F982); on the east side of Keppler Avenue; and north of the northeastern corner of the Former Fire Training Area. The exact location and current remediation status of these sites should be confirmed before any excavation or construction begins in these areas to protect the health and safety of the workers and avoid impacting the surrounding environment by inadvertently spreading the contamination outside of its current location.

The Army has completed an initial investigation and removal actions at the Arsenic Drum Disposal Site, which involved removal of the wastes and a substantial volume of contaminated soil. The soil and groundwater contamination from this area does not appear to extend more than a short distance from the disposal site. Additional removal actions were determined warranted and to be implemented. The only currently proposed future development in the vicinity of this site is the new parking lots to the south and west. Construction of the parking lots prior to completion of investigations or additional required remediation at the site could result in conflicts such as excavation or construction of monitoring wells within parking areas.

Sampling during 2005 of 14 soil test pits in the Former Fire Training Area confirmed the boundaries of the burn pit area, arsenic and cobalt levels were detected consistently above their ESLs, but at concentrations that were nearly all within background concentrations. Concentrations of dioxin and furans and all VOCs in ground water samples from four wells were below their ESLs; PCE was detected in one sample (CH2Mhill 2005b).

4.13.2.1.2.3 California Army National Guard (Future Lease)

This parcel is located along the southern boundary of the FCI, north and east of the OMS/RC facilities. No hazardous substance sites were identified in this parcel in the EBS report. No construction or other activities are proposed in this area at this time; therefore, there are no potential impacts to evaluate.

4.13.2.1.2.4 Oakland Exchange Parcel

The 34-acre Oakland Exchange parcel is adjacent (west) of the CA ANG OMS/RC parcel. The environmental baseline survey (Vernadero 2003) and EA (USAR 2003b) classified this parcel as a Type VII site, i.e., potential hazardous material contamination has not been evaluated by sampling or other investigations, and such evaluations are recommended. The parcel has since undergone further investigations that include soil and groundwater sampling (CH2Mhill 2005a). Several areas of concern were identified, which included areas that contained total petroleum hydrocarbons (TPH) in the soil and groundwater above ESLs. The EBS report specifically recommended sampling at Building 692 (potential metals and VOC release from sewer line), former Building 691 (F691, known UST; removal undocumented), and former Building 694 (potential metals and VOC release from sewer line).

Data collected during 2005 from 52 soil samples and three ground water samples from eight dispersed borings in the Oakland Exchange parcel revealed no likely environmental hazards in soils from VOC, SVOC, OCP, or PCB compound, TPH or metal concentrations. There were a few surface and near surface detections of low concentrations of OCP compounds that were believed to be historic, and widespread detections of arsenic and cobalt above ESLs but generally within the range of background levels and below PRG and ESL levels. No further investigation was recommended of these compounds or of TPH detections (two isolated at depth and one at the surface) that were above ESLs) (CH2Mhill 2005a). The data from the groundwater samples similarly revealed no likely environmental hazards from VOC, SVOC, OCP, or PCB compounds or from metals, although vanadium (above ESLs and in one case above the tap water PRG) was detected in all samples and a single detection of TPH was above all California screening levels (CH2Mhill 2005a). Water data were also collected from the Navy-era septic tank in this area and do not indicate any environmental hazard are present (CH2Mhill 2005a).

4.13.2.1.2.5 Central and Western Operations Area

The north-central part of the Operations Land Use Category contains several existing and former (designated by an “F” before the building number) residential structures identified

in the EBS report as possibly containing asbestos and lead-based paint (LBP). These structures are: Buildings 1110, 1111, 1112, 1113, F1115, F1116, 1117, F1118, 1119, and 1120. Lead was found at a concentration above 2,000 mg/kg in a soil sample collected adjacent to Building 1112. A parking lot for the proposed Camp Parks headquarters building (P014) would approximately cover the locations of Buildings 1111, F1115 and F1116. A new road is proposed for the general location of F1118. Building 1110 is located in an area designated as an opportunity site for future development, and Buildings 1112, 1113, 1117, 1119, and 1120 are located in an area where no development is planned.

Any ACM and/or LBP in the existing buildings must be removed by a licensed professional before they can be demolished. Any debris or soil containing asbestos or lead above regulatory levels also must be removed prior to construction of the new facilities. The presence of asbestos and/or lead at these building locations would not adversely impact the Proposed Action if adequate time is scheduled to remove the materials before construction of the new facilities begins.

Buildings 500, 501, 513, and 514 were identified as containing asbestos, according to the EBS report. Proposed Building P029 and parking areas PK29 and PK510B would cover all or part of the locations now occupied by Buildings 501 and 513. Two former incinerators and a former fuel UST were located at Building 514 and former Building F515, in the area designated as the proposed "Opportunity Site." The EBS report notes that although the incinerators and one UST were removed less than ten years ago, fuel piping was left in place at Building 514, and there are indications that another UST may exist south of Building 514. The EBS recommends a soil investigation in the area between Buildings 501, 514, and 513. The ACM at the buildings would not impact the Proposed Action if it is removed by a licensed professional prior to demolition. Any soil contamination found in the area between Buildings 501, 514, and 513 would have to be cleaned up to state and local standards before development could proceed. If the investigation and cleanup are not conducted in a timely manner, they could adversely impact the development schedule of the Proposed Action.

In the western part of the Operations Land Use Category, Buildings 284, 306, 331, 332 and 350 were identified as containing asbestos according to the EBS report. Proposed Building P028, Dining and Community Club, would occupy part of the location of Building 306. Proposed Buildings P025, Guest House, and P026, AAFES PX/Bank/Retail Outlets, would occupy parts of the location of Building 331. Proposed Building P023, Permanent Party Billet, would occupy part of the location of Building 332. A new road is proposed across the location of Building 350. The impacts on the Proposed Action from the ACM at these buildings is the same as that discussed for the buildings above.

4.13.2.1.2.6 Industrial Land Use Category

The Industrial Land Use Category includes the northwestern portion of the northern Cantonment Area. The main types of hazardous substances in this category are potential ACM, LBP, and residual contamination from USTs at residential structures. The EBS

report identified the following existing and former structures in the Industrial Land Use Category as potentially having ACM or LBP: Buildings 1121, 1122, 1123, 1124, 1125, 1130, 1131, 1137 and 1138. Buildings 1121, 1123, 1125, 1130, and 1138 were also identified as potentially having USTs that should be removed if present. ACM was also reported to be present in Buildings 360, 361, 362, 363, 364, 390, 391, 392, 393 and 394 . All of the existing buildings are expected to be eventually demolished to make way for new structures, parking, or streets.

The location of the new Provost Marshall's Office and Security Office (P017) is proposed for the immediate vicinity of Buildings 1130, 1131, 1137 and 1138. The new Medical Clinic (P016) is proposed for the area where Buildings 1121, 1122, 1123, 1124 and 1125 are located. The impacts on the Proposed Action from the ACM and/or LBP at the existing buildings are the same as those described above. Prior to development, investigations should be completed to determine if USTs are present at the five buildings mentioned above; these should be removed if present and closure documents obtained from Alameda County and CALEPA.

The EBS identified the area around the wash rack at 14th Street and Cromwell Avenue as requiring investigation prior to redevelopment. The wash rack was originally constructed in 1989 and is currently in use. Two oil/water separators are associated with the wash rack, both of which discharge to the sanitary sewer. It is possible that at one time discharges from the wash rack were routed to a leach field adjacent to the facility. The area to the north of the wash rack has also been used for petroleum, oil, and lubricant (POL) storage and as a parking area for heavy equipment. Previous investigations have not identified significantly elevated hydrocarbon or other hazardous constituent concentrations. The wash rack is to be retained and upgraded for future use. An AMSA/OMS facility is proposed for the area south of the wash rack.

4.13.2.1.2.7 Housing Land Use Category

The Housing Land Use Category in the southwest portion of the northern Cantonment Area is largely occupied by the newly constructed RCI housing, which was addressed in a separate EA (USACE 2003a). Therefore, the hazardous substance sites identified in the EBS report are only noted here, and potential impacts are not evaluated. Approximately 114 new military housing units have been constructed at Camp Parks. The new housing was located primarily in the southern part of the Housing Land Use Category. The EBS also noted the presence of ACM and the possible presence of LBP and lead-contaminated soil. Further sampling and remediation of any verified concerns occurred prior to construction of the RCI housing. In 2004, composite samples from the perimeter of the two barracks (B210 and B212) were collected and analyzed. The lead concentrations detected in these samples were below the California residential soil default action level. No further investigation was recommended (SI 2004a). Two former fuel tanks discovered during grading were removed from RCI in 2004, one small (#6-07) and one large heating oil tank (#19-17+18). The small tank was not categorized as a UST by the Alameda County Department of Health. Data from the soil samples collected at that time in association with tank #19-17+18 revealed no BTEX or fuel oxygenate concentrations,

and the TPH-diesel detected in three of the five samples was below screening levels for residential use (SI Group 2004b). Analysis of groundwater samples from the removal site indicated the presence of diesel fuel and motor oil-range hydrocarbons, copper, mercury, molybdenum, and nickel at concentrations exceeding their ESLs. The copper and nickel concentrations were suspected to reflect background levels; the mercury and molybdenum had no apparent connection with the UST (SCS 2005b). These data are currently being assessed prior to regulatory closure of the site. The ACM detected at this site was removed during construction activities according to an approved work plan (SI Group 2004c). There are no other known hazardous waste sites of concern within the housing polygon.

4.13.2.1.2.8 Open Space Land Use Category

The proposed Open Space Land Use Category along the western boundary of Camp Parks contains one former UST site, on the north side of Building 200, at the extreme southern boundary (5th Street). The tank was removed in 1997, and soil and groundwater samples were found to contain contaminant concentrations below regulatory limits. Closure was approved by Alameda County. Building 200 was also identified as containing asbestos in the EBS report. Since no new structures or activities are proposed for this area, the building is not planned to be demolished and therefore should have no impact on the Proposed Action.

The following residential structures with probable ACM and LBP are located in the proposed Open Space Land Use Category: Buildings 1100, F1103, F1104, 1105, 1106, 1108, 1109, 1132, 1134, 1139, 1140, F1141, F1133, F1135 and F1136. Buildings 1151 and 1152 were also identified as containing asbestos. These structures are to be demolished, and standard requirements for strict supervision and control of contaminated debris must be followed. Since no development is planned for the Open Space Land Use Category, the presence of ACM and/or LBP at these locations should not have any impact on the Proposed Action.

The Former Disposal Area, described in Section 3.13.2.13, is located near the north side of the east end of the Open Space Land Use Category. The boundary of the disposal area is not well defined, and the southern end of the disposal area may extend into the expansion zone. If construction is planned in that vicinity, excavation for a building foundation or other structure could expose historical wastes such as ACM demolition debris. Standard precautions and procedures should be followed for identifying excavated hazardous substances and properly disposing of them.

4.13.2.1.2.9 Recreation

The Recreation Land Use Category contains nine identified hazardous substance sites, according to the EBS report. These sites are Buildings 300, 301, 302, 303, 304, 320, 321, 323, and 330, all of which apparently contain ACM. This category also contains approximately ten former building locations. The cleanup standard for the playing fields would be stricter than for industrial, operations, or other uses. The bare soil exposed on the baseball diamond, and probably the soil covered with grass on both fields, should be

free from contaminants, to prevent even low-level human exposures. Extensive testing, or importing clean soil from another site, may be necessary to meet this standard.

The Proposed Action would be impacted by the presence of the ACM at the sites noted above because it would have to be removed to CALEPA cleanup levels before the sports fields could be constructed. The former building sites may also impact the Proposed Action in that they must be investigated, and possibly cleaned up, before the fields could be constructed. These potential impacts are not considered to be significant.

4.13.2.1.3 Training Area

The Proposed Action and its alternatives are not expected to result in significant impacts on hazardous substance sites within the Training Area.

4.13.2.1.3.1 Training Area Outside of DSRSD Land Use Category

There are no planned redevelopment activities for the area outside of the FCI Expansion area and the DSRSD Land Use Category (discussed below); therefore, there are no anticipated impacts to the Proposed Action. Any future development in the Training Area should avoid the Tassajara Disposal Trenches shown on Appendix B, Figure 4-2.

4.13.2.1.3.2 DSRSD Land Use Category

The DSRSD Land Use Category is the only part of the Training Area that would be developed under the Proposed Action. There are no documented hazardous substance sites in this category; therefore, there are no potential impacts to the Proposed Action.

4.13.2.1.4 Southern Cantonment Area

Once exchanged to private parties, the southern Cantonment Area would be developed for residential and residential-commercial land uses. In general, the Proposed Action would accelerate redevelopment and therefore result in impacts on hazardous substance sites in the short term, as compared to the long term for the Slow Growth Alternative. Under the Slow Growth Alternative, the southern Cantonment Area would not be exchanged to private ownership.

There are 17 sites in the southern Cantonment Area where hazardous substance releases or disposal are suspected or confirmed (USACHPPM 2002d, 2004b, 2004c); these sites are shown on Appendix A, Table 3-28. The investigations must be completed at these sites before redevelopment begins to ensure that workers, the public in the surrounding areas, and future residents are not exposed to hazardous substances. If not addressed in a timely manner, the hazardous substances in these areas could impact the Proposed Action by delaying development.

In addition to these man-made hazards at specific locations, the shallow soil in much of the proposed exchange area appears to naturally contain concentrations of chromium and arsenic that exceed California environmental screening levels. Similarly, the shallow groundwater, in at least the southeastern portion of the southern Cantonment Area,

contains apparently naturally elevated concentrations (above ESLs) of barium, copper and nickel; and somewhat less widespread elevated chromium, cobalt, lead, molybdenum, thallium, vanadium, and zinc.

Any construction, demolition, or cleanup work in the southern Cantonment Area that involves earthwork or traffic on natural soil roadways, i.e., excavation, truck transport, grading, trenching, compaction, landscaping, or any vehicle traffic, has the potential to generate dust containing these contaminants. Exposures may result due to inhalation or ingestion by on-site workers or other downwind human receptors, including people at off-site locations. Therefore, substantial or uncontrolled dust generation would be a significant negative impact under the Proposed Action and alternatives, including No Action. Dust control should be a priority for all future cleanup and development activities in the southern Cantonment Area.

Use of shallow groundwater, e.g., for drinking water or irrigation supply, is not anticipated in any future scenario. However, human or ecological exposures could occur as a result of dewatering of deep excavations, pumping from basement sumps, or unknowing use of shallow groundwater for lawn or landscape watering at individual facilities. These possible exposure pathways should be addressed in future mitigation provisions.

4.13.2.2 Comparison of Other Alternatives

Under the Slow Growth and No Action Alternatives, and in the absence of the proposed southern Cantonment Area exchange, the known and suspected contaminated sites at Camp Parks would be addressed by a more prolonged Army Installation Restoration Program prioritization process. The resulting "piecemeal" approach to remediation at Camp Parks might produce similar results, but would probably require at least a few additional years to reach the same end point. Therefore, in comparison with the Slow Growth and No Action Alternatives, the Proposed Action would likely result in significant beneficial impacts, in terms of costs and schedule, related to health/safety and hazardous substances.

The potential impacts from hazardous substances in the northern Cantonment Area on development under the Proposed Action and the Slow Growth Alternative are similar, although the impacts would occur over a longer time under the Slow Growth Alternative. There may be fewer impacts to development from hazardous substances under the No Action Alternative because fewer structures may be built. There are no anticipated significant impacts to the Proposed Action or any of its alternatives from hazardous substances.

There would be no potential impacts to the Proposed Action or its alternatives from hazardous substances in the Training Area.

The southern Cantonment Area would not be developed as Dublin Crossing under the Slow Growth. Under the No Action Alternative, decisions on development in the southern Cantonment Area would be made ad hoc, and any construction that occurred in

this area would lack adherence to a common vision. Under both alternatives, buildings would be demolished as their replacements are built.

4.13.3 Proposed Mitigation

Remediation of sites where hazardous substances and petroleum products and their derivatives have been found is an ongoing mitigation process at Camp Parks. The status of the primary sites is shown in Appendix B, Figure 4-2. As noted on the table and in the above discussions, there are both confirmed and suspected sites containing potentially contaminated soil and groundwater, buried fuel tanks, septic tanks, abandoned sewer or fuel lines, and demolition debris, as well as ACM and LPB.

All remediation will be performed in full compliance with the Resource Conservation and Recovery Act, other applicable federal and state laws and regulations, and DoD policies. This will ensure the accurate characterization and disposal of contaminated wastes and protect workers and the public from exposure to hazardous substances. Information on environmental remediation at Camp Parks may be found in the Final Public Participation Plan, U.S. Combat Support Training Command, Camp Parks, Dublin Crossing, August 2006; and the Camp Parks California Army Defense Environmental Restoration Installation Action Plan, February 2006.

4.14 SUMMARY OF SUBSTANTIVE IMPACTS AND PROPOSED MITIGATIONS BY ALTERNATIVE

The discussion of impacts above focuses on the impacts anticipated from the Proposed Action. The net changes in designated surface acreage uses under the Proposed Action would not be major. Overall, approximately 301.2 acres would become part of developed rather than natural areas. Significant impacts identified for land use and transportation and access would result from increased intensity of use in developed areas, and the change in character of the landscape from changes in intensity and type of use. Beneficial impacts to health, safety and hazardous substances would result from clean up and restoration actions. Adverse significant impacts would be prevented through mitigation or planning processes for impacts from geologic factors, and impacts to hydrology, soils, and cultural resources.

The potential impacts from implementation of the Master Plan are summarized by resource for each alternative in Appendix A, Table 4-13. This permits ready comparison of other alternatives with the Proposed Action as well as identification of key impacts by resource. The mitigation measures proposed for implementation are summarized by resource in Appendix A, Table 4-14.

5 COMPREHENSIVE CONSIDERATIONS

5.1 CUMULATIVE IMPACTS

CEQ regulations require that cumulative impacts of a proposed project be addressed as part of an EIS document (40 CFR 1508.25[a][2]). Cumulative impacts are effects on the environment that result from the incremental effect of a project in combination with other past, present, or reasonably foreseeable future actions, regardless of jurisdiction or entity. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

5.1.1 Cumulative Analysis Methodology

The cumulative impacts discussion that follows considers the Proposed Action in the context of the broader human environment—specifically, actions that occur outside the scope and geographic area covered by the Master Plan. The analysis assesses the magnitude of cumulative impacts by comparing the environment in its baseline condition to that with the expected impacts of the Proposed Action and other actions in the surrounding geographic area. As noted in Chapter 4, in nearly every case with regard to benefits as well as impacts, effects would be greatest from the Proposed Action and least from the No Action Alternative. Therefore, this discussion considers only cumulative impacts relative to the Proposed Action. Cumulative impacts relative to the other two alternatives would nearly always be less for individual resources, and would be less for resources collectively.

The cumulative impact analysis below identifies the boundary of the area considered for each resource category, described its threshold of significance, and discusses the environmental consequences of the cumulative impacts to it (32 CFR 651.16). It includes consideration of cause and effect relationships, determines the magnitude and significance of cumulative effects, and identifies mitigation measures where appropriate. The magnitude of an impact is determined through a comparison of anticipated conditions against the baseline as depicted in the Existing Environment chapter (3) or the long-term sustainability of a resource or social system. The following factors were considered in this cumulative impact assessment:

- Federal, nonfederal, and private actions
- The potential for effects to cross political and administrative boundaries
- Other spatial and temporal characteristics of each affected resource,
- The comparative scale of cumulative impacts across alternatives.

Past, present, and potential future actions are considered in the analysis to determine whether the environment has been degraded or enhanced and to what extent; whether ongoing activities are causing impacts; and trends for activities and impacts in the area.

Projects and activities are evaluated on the basis of proximity, connection to the same environmental systems, potential for subsequent impacts or activity, similar impacts, the likelihood a project will occur, and whether the project is reasonably foreseeable.

The boundary for assessing cumulative impacts was set to encompass the past, present, and reasonably foreseeable future projects associated with Camp Parks and in proximity to Camp Parks are listed in Appendix A, Table 5-1 and Table 5-2, respectively. Any minor modifications in this boundary for a specific resource category are noted in its discussion. Appendix A, Table 5-3 provides population projections from the Association of Bay Area Governments. Projections for the projects and activities, which have been developed for analytical purposes only, are based on current conditions and trends and represent a best professional estimate. Unforeseen changes in factors such as the economy, demand, and federal, state, and local laws and policies could result in different outcomes than those projected for this analysis. The threshold levels of significance used for each resource category are the same as those defined in Chapter 4.

The following tabulation of impact significance is presented in summary:

Resource	Significant Master Plan Impacts, without Proposed Mitigation Measures?	Significant Master Plan Impacts, with Proposed Mitigation Measures?	Significant Cumulative Impacts?
Air Quality	No	No	No
Hydrology	Yes	No	No
Topography, Geology, Mineralogy and Paleontology	Yes	No	No
Soils	Yes	No	No
Vegetation, Including Special-status Plant Species and Wetlands	No	No	Yes
Fish and Wildlife, Including Special-status Species	No	No	Yes
Cultural Resources	Yes	No	No
Socioeconomics	No	No	Yes
Land Use	Yes	Yes	No
Transportation	Yes	Yes	Yes
Noise	No	No	No
Visual and Aesthetic Resources	Yes	No	No
Health/Safety and Hazardous Substances	Yes	No (benefits)	No (benefits)

5.1.2 Cumulative Impacts By Resource Category

Cumulative impacts are discussed only for resources that may experience impacts. The following resources are expected to have negligible cumulative impacts and are not

discussed: topography, geology, mineralogy, paleontology, and soils. Resources that have potential for cumulative impacts are discussed below by resource category.

5.1.2.1 Air Quality

The threshold levels of significance for air quality are discussed in Section 4.1. Table 5-4 in Appendix A presents the calculated emissions using URBEMIS for the existing City of Dublin, the No Action Alternative, the Proposed Action, the development of Dublin Crossing, and other development projects within Dublin. The cumulative assessment assumes that all of these projects will be completed and operational by the year 2014. Other assumptions adopted for the URBEMIS emissions calculations are described in Appendix D-2. The cumulative emissions from the Proposed Action, the development of Dublin Crossing, and the other proposed development projects were compared to the thresholds of significance listed in Appendix A, Table 4-1. The estimated cumulative impacts of these actions are anticipated to be significant with respect to ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$. Collectively, the cumulative impact from all the proposed development projects represents an increase of between 38 percent and 42 percent for these pollutants over the future emissions from the current City of Dublin developments including Camp Parks. Taken alone, the emissions increase from the Proposed Action (e.g., Proposed Action emissions minus No Action Alternative emissions) is anticipated to account for an emissions increase of only 1 percent of the anticipated 2013 emissions from the current City of Dublin developments including Camp Parks. Thus, the Proposed Action is not expected to add significantly to cumulative air quality impacts in the area, and no further evaluation of the regional cumulative impacts is necessary for these pollutants.

Because CO has the potential to produce a localized "hot spot," the cumulative impact of CO emission increases must be assessed in the immediate vicinity of the Proposed Action. As shown in Table 5-4 in Appendix A, the cumulative CO emission increase after completion of all projects in the area is 1,789 ton/yr, which exceeds the federal significant threshold level of 100 ton/yr presented in Table 4-1 in Appendix A. (The cumulative increase also exceeds the BAAMQD CO threshold of 550 lb/day.) Because the anticipated cumulative CO emissions increase exceeds the level of significance, the CALINE4 model was run following CEQA guidelines to determine localized CO concentrations. To be conservative, CALINE4 was used to model CO emissions at the intersection of Dublin Boulevard and Dougherty Road. This intersection was identified having the highest projected traffic volumes and is the only intersection expected to operate below the City of Dublin's LOS standard as a result of the development of Dublin Crossing (see Section 4.9.2.2 for additional discussion).

The CALINE4 model was run for the 1-hr worst-case wind direction/lane orientation angle using standard default values described in Appendix D-2. The Emissions Factor Model (EMFAC) was run to provide a tailpipe emission factor for input into CALINE4. Appendix D-4 presents the EMFAC output file. Appendix D-5 presents the CALINE4 output file. The highest ambient 1-hr CO concentration was 5.5 ppm for the morning peak period, including background. A 0.7 persistence factor from the CEQA guidelines was used to calculate the 8-hr value of 3.8 ppm. The 1-hr and 8-hr CO CAAQS are 20 ppm and 9 ppm, respectively. Comparison of the 1-hr and 8-hr CO hot spot results of

5.5 ppm and 3.8 ppm, respectively, to the CAAQS reveals that no adverse CO hot spot impacts are expected. Thus, even when using the highest traffic volume intersection and conservative assumptions pertaining to wind angle, average vehicle speed, and others, the CO standards would not be compromised by the cumulative impacts of the Proposed Action and other development projects.

Greenhouse Gas Emissions

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of trace greenhouse gases (GHGs), such as CO_2, in our atmosphere. An increase in GHG emissions is said to result in an increase in the Earth's average surface temperature, which together are commonly referred to as global warming. Global warming is expected, in turn, to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, precipitation rates, etc., which is commonly referred to as climate change. The Intergovernmental Panel on Climate Change (IPCC) best estimates are that the average global temperature rise between 2000 and 2100 could range from 0.6 degrees Celsius (°C) (with no increase in GHG emissions above year 2000 levels) to 4.0°C (with substantial increase in GHG emissions). Large increases in global temperatures could have considerable detrimental impacts on natural and human environments.

GHGs include water vapor, CO_2, CH_4, N_2O, O_3, and several hydrocarbons (HCs) and chlorofluorocarbons (CFCs). Each GHG has an estimated Global Warming Potential (GWP), which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the Earth's surface. A gas GWP provides a relative basis for calculating its Carbon Dioxide Equivalent (CO_2e) or the amount of CO_2 a gas' emission would be equal to. CO_2 has a GWP of 1, and is therefore the standard to which all other GHGs are measured.

Water vapor is a naturally occurring GHG and accounts for the largest percentage of the greenhouse effect. Next to water vapor, CO_2 is the second-most abundant GHG. Uncontrolled CO_2 emissions from power plants, heating sources, and mobile sources are a function of the power rating of each source, the feedstock (fuel) consumed, and the source's net efficiency at converting the energy in the feedstock into other useful forms of energy (e.g., electricity, heat, and kinetic). Because CO_2 and the other GHGs are relatively stable in the atmosphere and essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact of these emissions does not depend upon the source location on the earth (i.e., regional climatic impacts/changes will be a function of global emissions).

Implementation of the Proposed Action and alternatives other than the No Action Alternative can reasonably be expected to contribute an increased amount of greenhouse gases to the atmosphere as a result of increased combustion of carbon based fossil fuels from stationary and mobile sources.

5.1.2.2 Hydrology

The threshold levels of significance for hydrology are listed in Section 4.3. The Proposed Action would lead to more intensive land uses in the northern and southern Cantonment Areas at Camp Parks that would be added to the increased development occurring adjacent to the installation boundaries. The increased land use intensity would contribute incrementally to urban- and construction-related pollutant loadings and flooding of Arroyo Mocho, Arroyo De La Laguna, and Alameda Creek. However, storm water discharge and proper use, storage, and disposal of chemicals and fuels are regulated and monitored by the state for all projects under their purview. This would minimize the cumulative effect of these development actions because each of these developments may be assumed to be individually compliant with state standards relating to hydrology including RWQCB standards for hydromodification. It is assumed that each development successfully implements mitigation measures for hydromodification, construction-site storm water pollution, urban storm water pollution, and spills of chemicals and fuels. Thus, neither impacts on water quality from implementation of the Master Plan nor those from cumulative developments (Appendix A, Table 5-1 and Table 5-2) are expected to be significant. An additional cumulative hydrologic consideration is the change in local topography from regranding of developed areas. Extensive regrading would not occur under the Master Plan and is not considered as an impact. However, the extensive regrading that has occurred just north of Camp Parks' northern border could have significant impacts on surface water flow in the northern Training Area. Mitigation is not proposed for these impacts because their causes lie outside Camp Parks boundaries.

5.1.2.3 Vegetation, Including Special-status Species, and Wetlands

The threshold levels of significance for vegetation are listed in Section 4.5. The primarily ruderal non-native grassland (297.6 acres) and wetland acres (3.6) that would be lost to redevelopment of the Camp Parks Cantonment Area are of themselves relatively inconsequential. All of the ground that would be disturbed in the Cantonment Area has been previously disturbed, and it is surrounded by extensive urbanization. For restoration during and after redevelopment, it would be important to use natural plant cover that would support Congdon's tarplant and other native species to the maximum extent possible in the Cantonment Area, and to carefully monitor the quality and condition of the natural habitats that remain in the Training Area.

The loss of vegetation and wetlands under implementation of the Master Plan is not considered significant. Non-native grassland to be lost is primarily ruderal, and mitigation would be implemented for the loss of any wetlands that cannot be avoided. However, cumulative impacts on vegetation, particularly Congdon's tarplant from all additional developments considered, particularly off post (Appendix A, Table 5-1 and Table 5-2), could be significant. Mitigation is not proposed for these impacts because a majority of their causes lie outside Camp Parks boundaries.

5.1.2.4 Fish and Wildlife, Including Special-status Species

The threshold levels of significance for fish and wildlife are listed in Section 4.6. The loss of habitat for federal or state species of concern such as burrowing owls, loggerhead shrikes, white-tailed kites, and other species (especially raptors) is relatively inconsequential in terms of acreage. None of the wetlands in the Cantonment Area have been shown to contain sensitive species, and the Training Area wetlands, where California tiger salamander, California-red legged frog, and California linderiella occur, are protected by buffer zones.

The loss of habitat and documented nesting and foraging sites would be in the context of extensive surrounding urbanization. For animal species having limited ranges, Camp Parks would provide sufficient acreage to support numerous individuals within its boundaries, even with redevelopment. Loss of habitat for such species is of consequence only relative to the regional trend and when Camp Parks provides an important component of a species home range that extends onto adjacent property. For animal species having larger ranges, such as raptors and mammalian carnivores, Camp Parks of itself supports only a few individuals; the individuals that once used Camp Parks together with surrounding grasslands are now limited by the surrounding areas that have been developed. Thus, within the context of surrounding urbanization, the natural habitats that remain at Camp Parks after redevelopment would assume increasingly greater regional importance.

Thus, impacts to fish and wildlife from implementation of the Master Plan are not considered significant because the development would occur primarily in the ruderal habitats of the Cantonment Area, and in the Training Area minimization and avoidance measures are implemented to protect special-status species and their habitat. However, cumulative impacts from this and the other developments considered (Appendix A, Table 5-1 and Table 5-2), would be significant due to loss of occupied burrowing owl nesting habitat in the context of a recent petition for state listing of this species. In addition, there is substantial fragmentation and loss of important natural communities that formerly provided connectivity between Camp Parks and nearby regional parks for wide-ranging species. While impacts to habitat and individuals within adequate home ranges can be mitigated, the more geographically extensive impacts associated with cumulative impacts cannot and mitigation is not proposed for these impacts because their causes lie outside Camp Parks boundaries.

5.1.2.5 Cultural Resources

The threshold levels of significance are listed in Section 3.7. Cumulative indirect impacts (including theft, vandalism, or accidental damage to cultural resources) could occur as a result of increased population growth, the cumulative ground disturbance of projects and activities on Camp Parks and in adjacent areas, and increased use of the Camp Parks Training Area under the Proposed Action. The NRHP-eligible entrance sign is near the boundary of Camp Parks, adjacent to a busy road, and near RCI housing and housing on the west side of Dougherty Boulevard. Cumulatively, the established

residences and the increased Camp Parks population under the Master Plan would increase the population in proximity to the entrance sign and therefore the potential of its being vandalized or accidentally damaged.

Most of Camp Parks is in areas of very low to low cultural resource sensitivity. Construction planned under the Master Plan would all be completed in areas of very low to low cultural resource sensitivity, except in the southern Cantonment Area where some areas of moderate sensitivity occur. There is no construction planned in any of the areas of high sensitivity, under the Master Plan or other Camp Parks projects. Further, actions occurring within the Camp Parks boundaries are subject to mitigation, monitoring, and avoidance as part of standard installation operating procedures. It is expected that similar measures will be put in place for the southern Cantonment Area before Dublin Crossing is developed.

Therefore, implementation of the Proposed Action is not anticipated to have significant impacts to cultural resources. Because it is assumed that other developments considered as part of the cumulative analysis (Appendix A, Table 5-1 and Table 5-2) will have similar mitigation measures in place to avoid or minimize impacts to cultural resources, cumulative impacts to cultural resources are not anticipated to be significant.

5.1.2.6 Socioeconomics

The threshold levels of significance are listed in Section 4.8. The Proposed Action would occur in the context of a rapidly growing urban region. Appendix A, Table 5-1 and Table 5-2 list and describe the additional residential, institutional, commercial and other projects on or in the immediate vicinity of Camp Parks that are underway, approved, or proposed. Appendix A, Table 5-3 shows that population is expected to increase in the City of Dublin by 37,500 (92.1 percent) from 2005 to 2030. The increase of 1,945 in the total of assigned personnel at Camp Parks, would represent only 5.1 percent of the projected population growth. The projected population in the housing to be developed in the southern Cantonment Area (Dublin Crossing) is 5,025, representing 13.4 percent of the City of Dublin's projected population growth. An unknown but much smaller population increase could be attributed to new jobs at Dublin Crossing.

These figures indicate that the Proposed Action would represent an increase in population for the City of Dublin, but one that is well within projected population increases. When the growth of San Ramon and Pleasanton are also considered, the Proposed Action becomes even smaller in proportion to projected local population growth. The local region faces some challenges in providing sufficient schools and other infrastructure to accommodate expected growth, but these challenges would occur regardless of implementation of the Proposed Action. The cumulative effect of the Proposed Action on employment and the economy would be beneficial due to job generation and multiplier effects. The Proposed Action's retail and commercial projects would be relatively small in the context of the totality of projects listed in Appendix A, Table 5-2 and other projects within the trade area of Dublin Crossing; however, the cumulative impacts would depend on the actual tenant mix, which is unknown at this time.

Camp Parks' contribution to cumulative impacts on social and community relationships although significant, would be relatively minor and readily accommodated within the planning assumptions of the surrounding communities. The population associated with both redevelopment of the northern Cantonment Area and development of Dublin Crossing would constitute less that 20 percent of the 22.5 percent population growth projected between 2005 and 2030. Thus, cumulative impacts from development of Camp Parks in combination with the other developments considered in this evaluation (Appendix A, Table 5-1 and Table 5-2) would be considerably more significant. These impacts can be mitigated by timely development of additional infrastructure and services so long as adequate funding mechanisms are in place but this is outside of the project's scope.

5.1.2.7 Land Use

The threshold levels of significance are listed in Section 3.9.1. The Proposed Action would lead to more intensive land uses on Camp Parks; however, the Training Area and northern Cantonment Area would remain in federal ownership and be administered by the Army for land uses that support military training. Camp Parks is located in a rapidly growing area and the proposed land use changes would not have an appreciable effect on nearby land use development patterns, which are driven by market forces that are unrelated to the installation. Exchanging the southern Cantonment Area out of federal ownership and subsequently developing it into a mixed-use area would contribute to the cumulative urban development surrounding Camp Parks. The southern Cantonment Area is a mostly open area surrounded by urban developments, and its development constitutes less than 3 percent of the new development acreage in the area.

The land use changes associated with implementation of the Master Plan would be substantial and include a change in land ownership. However, they would not conflict with established land uses to the south and west or with the changing land use to the north of Camp Parks (Appendix A, Table 5-1 and Table 5-2). Therefore, these changes in land use can be considered significant of themselves, but relatively minor when compared with the cumulative land uses that are occurring in the vicinity of the installation. Cumulative impacts from changes in land use would be considerably more significant. These impacts cannot be mitigated.

5.1.2.8 Transportation and Access

The threshold levels of significance are listed in Section 4.9.2. The LOS analysis of the Proposed Action incorporates approved and planned projects that have been incorporated in the City of Dublin's buildout scenario, in accordance with the City's direction to investigate traffic impacts of the Proposed Action in addition to those resulting from planned development activity (*pers. comm*. Kuzbari 2005). Thus, the part of the discussion in Section 4.9.2 that is based on traffic model data addresses cumulative impacts and should be read in addition to the comments in this section. There would be cumulative traffic deterioration at key intersections adjacent to Camp Parks regardless of this project attributable to: traffic generated by the City's approved and planned projects,

population growth, and secular increases in VMT per person. The City is particularly concerned with Dublin/Dougherty, which is currently subject to poor LOS at peak times of day.

The Proposed Action would result in a deterioration of LOS beyond LOS C at six intersections along Dublin Boulevard and Hacienda Drive, as well as at the I-580 onramps. However, the implementation of the Proposed Action would not be expected to result in any significant deterioration of LOS beyond the City's traffic standard of at least LOS D, with the exception of the Dublin Boulevard/Dougherty Road intersection, which would be at LOS E or worse.

One potential area of concern would be the immediate network of streets approaching the intersection of Dougherty Road and Amador Valley. The planned Arroyo Vista development, to be located west of Dougherty Road and Scarlett Drive, would be expected to lead to approximately 300 AM and PM trips to the local street network. The trips generated to and from Camp Parks at Dougherty Road/Amador Valley Road would not be expected to result in a deterioration of LOS to unacceptable levels (below LOS D). However, given the planned relocation of the Main Gate to Dougherty Road/Amador Valley Road and the high left-turn volumes from Dougherty Road onto Amador Valley Road, reconfiguration to a four-leg intersection should include a second left turn lane as a possible mitigation.

With the recent decline in demand for commercial property, the Dublin/Pleasanton BART joint development project planned on the south side of Dublin Boulevard across from the current main entry to Camp Parks would likely be delayed substantially. As a result, the cumulative impacts on local traffic conditions resulting from the Proposed Action and other approved and planned projects in the City of Dublin that would impact study area intersections would likely be felt more gradually over a longer period of time.

The modeling performed to evaluate impacts to transportation associated with implementation of the Master Plan assumed the presence of other approved and planned projects included in the City of Dublin's buildout scenario. Therefore, the impacts identified are the same for project specific and cumulative considerations. The degradation of the intersection of Dublin Boulevard and Dougherty Road to LOS E or worse would be a significant impact. This is in part because the existing infrastructure at this intersection would not accommodate street redesign to mitigate this impact.

5.1.2.9 Noise

The threshold levels of significance are listed in Section 4.10. Implementation of the Proposed Action is not expected to result in any significant increases in noise levels. However, the very rapid population growth in what was a rural area when Camp Parks was established has cumulatively increased the number of people affected by noise, regardless of mitigation measures being taken. In addition, the Proposed Action would contribute to additional traffic volume on major thoroughfares and therefore increased noise, due to expanded operations within the Cantonment Area and subsequent private development of the southern Cantonment Area. In combination with the traffic generated

from new developments, the noise generated from additional traffic could become a nuisance to residences along the major thoroughfares in the long-term. The proportion of additional traffic attributable to Camp Parks and Dublin Crossing would be 5.1 percent and 13.4 percent, respectively, based on the socioeconomic analysis provided in Section 5.1.2.6.

Impacts from the noise of Master Plan implementation are not expected to be significant. Noise from this and other developments considered (Appendix A, Table 5-1 and Table 5-2) is not expected to be significant, either, although the quiet atmosphere of the formerly rural setting to the north and east of Camp Parks will change markedly.

5.1.2.10 Visual and Aesthetic Resources

The threshold levels of significance are listed in Section 4.12. As urban development has filled the valley floors in Dublin and San Ramon, development activity has shifted to the surrounding hillsides. Views of rolling hills, which characterize the region, have been degraded by housing subdivisions and other structures, particularly along the northern and eastern boundaries of Camp Parks. However, Camp Parks would retain the views associated with the largely undeveloped Training Area. The built environment would remain in the Cantonment Area, where topography is relatively flat, and would not dominate the views from adjacent areas. Views surrounding Camp Parks are becoming more urban as a result of continuing residential and commercial development. Implementing the Master Plan, the subsequent private development of the southern Cantonment Area, and other projects at Camp Parks would contribute to the increase in urban views and a cumulative decline in open areas. However, implementation of the Proposed Action in the northern and southern Cantonment Areas would contribute to improved visual quality and a more cohesive visual character of the built environment on Camp Parks and the surrounding community, including more visually appealing buildings and landscaping.

Because development would occur on relatively flat ground and adjacent to existing urbanized areas, the impact of Master Plan implementation on visual and aesthetic resources is not expected to be significant. To the north and east of Camp Parks, development is occurring on rolling hills diminishing the visual quality and natural landscape character. Even when considered in conjunction with other developments (Appendix A, Table 5-1 and Table 5-2) the proposed development is not significant since it is of urban character within and urban setting.

5.1.2.11 Health/Safety and Hazardous Substances

The threshold levels of significance are listed in Section 4.13. Development of new and expanded uses in the northern and southern Cantonment Areas associated with the Proposed Action and other projects on Camp Parks that would result in known or potential contamination and remediation issues being addressed in an efficient and cost-effective manner.

Thus, implementation of the Master Plan would result in benefits, not impacts. Other areas considered part of the cumulative analysis (Appendix A, Table 5-1 and Table 5-2) are collectively unlikely to have extensive hazardous substances because the larger of these areas had agricultural uses and lack the long history of industrialized military use. Where hazardous substances occur, they would be subject to the same stringent remediation standards that are being applied at Camp Parks. Therefore, cumulative impacts associated with health/safety and hazardous materials are not expected to be significant; and benefits are expected instead.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(2)I of NEPA requires discussion of any irreversible or irretrievable commitments of resources that would be involved with the Proposed Action if it were implemented. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time (e.g., a vegetated area that is developed). An irreversible commitment of a resource is one that cannot be reversed (e.g., the extinction of a species or disturbance to protected cultural resources).

Implementation of the Proposed Action would use land, building materials, and energy to redevelop Camp Parks. Development activities in the northern and southern Cantonment Areas would irreversibly consume energy and materials for facilities and construction. Some of these materials would be recycled at the end of their useful life, but the use of fuels for the facility is an irretrievable commitment as long as the facility operates. Development activities in the Cantonment Area and use of the Training Area would alter soil, remove vegetation cover, remove wildlife habitat, and potentially damage unknown cultural and paleontological resources. Much of the land to be used has been repeatedly disturbed by, and partially recovered from, previous activities on the site over more than half a century. This has been especially true in the Cantonment Area where nearly all of the redevelopment would occur. Slight increases in sediment and nonpoint source pollution may result in an irretrievable degradation of water quality from these activities. Wildlife dependent on the affected habitats would be displaced and habitat carrying capacity reduced. Irreversible and irretrievable losses of wildlife habitat indirectly reduce the amount of suitable special status species habitat. Maintaining the Training Area as undeveloped, non-native grassland and adherence to best management practices during Cantonment Area development would reduce the magnitude of these impacts.

5.3 UNAVOIDABLE ADVERSE IMPACTS

Section 102I of NEPA requires disclosure of any adverse environmental effects that cannot be avoided should the Proposed Action be implemented. Unavoidable adverse impacts are those that remain following implementation of mitigation measures or impacts for which there are no mitigation measures. These include primarily small contributions to decreased air quality, cumulative socioeconomic impacts, loss or fragmentation of occupied habitat for nesting burrowing owls and Congdon's tarplant, land use changes, deterioration of traffic LOS at the Dublin Boulevard/Dougherty Road intersection to LOS E or worse, and degraded visual resources relative to the natural environment. These unavoidable adverse impacts from Camp Parks redevelopment are

significant and contribute to a trend that is also significant when viewed from a cumulative perspective. Each of the other major land use changes bounded by and adjacent to I-580, I680, and Tassajara Road result in these same unavoidable adverse impacts (decreased air quality, cumulative socioeconomic impacts, loss or fragmentation of occupied habitat for nesting burrowing owls and Congdon's tarplant, land use changes, deterioration of traffic level of service, and degraded visual resources). Thus, in a regional context, all of these unavoidable adverse impacts from redevelopment of Camp Parks are minor, as similar surrounding changes are of much greater magnitude.

5.4 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Section 102I of NEPA requires discussion of the relationship between local, short-term uses of the human environment and maintenance and enhancement of long-term productivity of resources. "Short-term" is defined as expected to occur within 1 to 5 years of implementation of the plan. "Long-term" is defined as after the first 5 years of implementation, but within the life of the Master Plan. The Proposed Action would result in various short-term effects, such as increased localized soil erosion and compaction, loss of vegetation and habitat, and fugitive dust emissions during construction of the new facilities. Much of the land to be used has been repeatedly disturbed by, and partially recovered from, previous activities on the site over more than half a century. This has been especially true in the Cantonment Area where the soil mostly consists of artificial fill, landscaped areas, and improved grounds and nearly all of the redevelopment would occur.

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Function: Initial coordination with Bay Area Air Quality Management Board
Qualifications: B.S. Business Administration, A.A. Aeronautics/Engineering
28 years of experience

Pat Shanley, Associate
Function: Research and preparation of initial soils sections
Qualifications: B.S. Geosciences, Registered Geologist and Hydrogeologist
20 years of experience

Greg Starkebaum, Associate
Function: Research and preparation of initial health/safety and hazardous materials sections
Qualifications: M.S. Civil Engineering, B.S. Civil/Environmental Engineering
25 years of experience

Jean Tate, Associate
Function: Assistant Project Manager, primary author of Executive Summary, abstract, Chapters 1 and 2, update and revision of vegetation and fish/wildlife sections, and technical editing, revision, and compilation of document.
Qualifications: Ph.D. Ecology, M.S. Zoology, B.S. Biology
28 years of experience

Kyle Williams, Senior Consultant
Function: GIS mapping
Qualifications: B.S. Geology
3 year of experience

FEIS Preparers – USACE Mobile District NEPA Support Team

Joseph Hand, Civil Engineer
Function: Project Manager and NEPA Support Team
Qualifications: USACE Mobile District
23 years of experience

FEIS Preparers – Louis Berger Group, Inc.

Timothy Canan, Senior Planner
Function: Project Manager, preparation of the Draft FEIS
Qualifications: M.U.R.P. Urban and Regional Planning
17 years of experience

Carlos Espindola, Senior Transportation Engineer
Function: Preparation of revised transportation sections for Check Copy FEIS and Final EIS; transportation modeling
Qualifications: M.S. Civil Engineering / Transportation
10 years of experience

Frank Skidmore, Senoir Project Manager
Function: QA/QC, preparation of the Check Copy FEIS and Final EIS
Qualifications: M.S. Civil Engineering
40 years of experience

Julia Yuan, Environmental Scientist
Function: Project Manager, preparation of the Check Copy EIS and Final EIS
Qualifications: B.S. Environmental and Forest Biology/Forest Resources Management, M.P.S Forest and Natural Resources Management
6 years of experience

FEIS Preparers – Vernadero Group, Inc.

Jared Anderson, GIS Specialist
Function: Preparation of the Check Copy EIS and Final EIS
Qualifications: B.S. Applied Geography and Geographic Information Management
1 year of experience

Chuck Burt, Senior Ecologist
Function: Preparation of the Check Copy EIS and Final EIS
Qualifications: M.S. Forest Zoology, B.S. Biology
34 years of experience

Michael Collins, Ph.D., Principal Planner

Function: Project Management and preparation of Check Copy EIS and Final EIS

Qualifications: Ph.D. Environmental Design and Planning, Master of Environmental Planning, B.S. Urban Planning and Development.
14 years of experience

Cris Howard, Program Manager

Function: Public Involvement and preparation of the Check Copy EIS and Final EIS

Qualifications: M.U.E.P. Urban and Environmental Planning
8 years experience

Hilda Plumeda, Administrative Assistant

Function: Technical Editing and preparation of the Administrative Record

Qualifications: 2 years of experience

Nancy Shelton, NEPA Project Manager

Function: Technical Editing and preparation of the Check Copy EIS and Final EIS

Qualifications: M.E.P. Environmental Planning
5 years experience

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8 PERSONS CONTACTED AND ISSUES DISCUSSED

Barems, David. 2005. Dublin San Ramon Services District. (925) 875-2242.
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: Water and sewer infrastructure, usage, permit processes, and availability.

Bascom, Kristi. 2005. City Planner. City of Dublin. (925) 833-6610.
Issues discussed: Background data for the socioeconomics baseline and analysis, including information on parks and recreation.
Issues discussed: City projects that might be pertinent to the EIS and current community service contacts.
Issues discussed: Support and approval for release of Dublin Crossing traffic data modeled by TJKM.

Britton, John. 2005. Media Relations. SBC California. (415) 537-3360.
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: Phone information and requirements.

Chen, Megan. 2005. Environmental Contractor. Camp Parks**. (925) 875-4274.**
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: General information regarding the alternative, Camp Parks installation, and guidance during project execution, as well as data from ongoing site studies.

Conner, Andrew. 2005. Engineer Analyst. Pacific Gas and Electric. (415) 973-1756.
Issues discussed: Electrical and natural gas service to Camp Parks.

Delight, Steven. Dublin San Ramon Services District.
Issues discussed: Water and sewer infrastructure, usage, permit processes, and availability.

Gula, Joseph. SSG Gula, Billeting NCO at Building 311, Camp Parks**.**
Issues discussed: Information on Camp Parks housing discussed with Megan Chen, Environmental Contractor at Camp Parks.

Heironimus, Beverly. 2005. Chief Fiscal Officer. Dublin Unified School District. (925) 828-2551 ext. 8041.
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: School enrollment and capacity levels.

Herbst, Randy. PG&E Dublin Service Planning Department.
Issues discussed: Power information and requirements.

Hilken, Henry. Principal Planner for Bay Area Air Quality Management District, and Kevin Shevlin, Environmental Scientist for Engineering & Environment, Inc.
Issues discussed: The most current guidelines for assessing air quality impacts in the Bay Area.

Jeffries, Debbie. 2005. Amador Valley Industries. (925) 846-4062.
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: The new solid waste contract for the city of Dublin starting in July 2005.

Johnson, Teresa. 2005. Fire Marshal. City of Dublin. (925) 833-6606.
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: Fire information and requirements for the City of Dublin and the Alameda County Fire Department.

Kuzbari, Ray. 2005. City of Dublin Traffic Engineer. ray.kuzbari@ci.dublin.ca.us
Issues discussed: Support and approval for release of Dublin Crossing traffic data modeled by TJKM.
Issues discussed: General study guidelines for transportation.

Lee, Darwin. 2005. Pacific Gas and Electric. Senior New Business Representative. (925) 525-5490.
Issues discussed: Electrical and natural gas service to Camp Parks.

McNeely, Kim. 2005. Director of New Facilities and Construction. Dublin Unified School District. (925) 828-2551 ext. 8061.
Issues discussed: Background data for the socioeconomics baseline and analysis.
Issues discussed: School capacities, enrollment trends, and school development plans.

Perkins, Jamie. 2005. Senior Planner, East Bay Regional Parks District, Regional Trails Department. 510.544.2611
Issues discussed: Description of current status of Tassajara Regional Park and nearby trails managed by the East Bay Regional Parks District.

Ram, Jerri. Planning Manager. City of Dublin.
Issues discussed: City projects that might be pertinent to the EA, the City's process in dealing with NEPA/CEQA compliance of actions within its purview, and how the City would view the types of changes being considered for Camp Parks.

Reid, Patrick. 2005. Fire Chief,. Camp Parks**. (925) 875-4901.**
Issues discussed: Fire information and requirements for Camp Parks Fire Protection Division.
Issues discussed: Background data for the socioeconomics baseline and analysis.

Shevlin, Kevin. Environmental Scientist for Engineering & Environment, Inc.
Issues discussed: The most current guidelines for assessing air quality impacts in the Bay Area.

Staff, Alameda County
Issues discussed: Soils within the study area.

Staff, Contra Costa County.
Issues discussed: Soils within the study area.

Sundaram, Kay. 2004. Booz Allen Hamilton Associate, and Experienced San Francisco Bay Area Flight Instructor.
Issues discussed: The influence of the traffic pattern for Livermore on the flight path of helicopters arriving at or departing from Camp Parks.

Thuman, Gary. 2005. Police Chief,. City of Dublin. (925) 833-6685.
Issues discussed: Law enforcement information for the Dublin Police Department.
Issues discussed: Background data for the socioeconomics baseline and analysis.

Vitulano, Karen. 2007. U.S. Environmental Protection Agency, Region 9 Environmental Review Office. Issues discussed: EPA comments on DEIS.

Walsh, Dan. Engineering & Environment, Inc. at Camp Parks.
Issues discussed: The status of the Explosives/UXO survey being conducted by the U.S. Army Technical Center for Explosives Safety, recent investigations completed in the northern and southern Cantonment Areas, cleanups planned for 2005 locations of hazardous materials sites.

Wu, Jia Hao. 2005. TJKM Traffic Engineer. JHWu@tjkm.com
Issues discussed: Results of traffic modeling conducted by TJKM for the City of Dublin and authorized for release to Booz Allen by Kristi Bascom and Ray Kuzbari.

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9 DISTRIBUTION LIST*

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
List Compiled for Announcement of Scoping Meetings								
			63 RRC, HQ	Attn: Wayne Alves	4235 Yorktown Avenue	Los Alamitos	CA	90720
			Association of Bay Area Governments (ABAG)	PO Box 2050		Oakland	CA	94604-2050
			California Valley Miwok Tribe (Sheep Ranch Rancheria)	Silvia Burley, Chairperson	10601 Escondido Place	Stockton	CA	95212
			CalTrans	ATTN: Right of Way Agent	P.O. Box 7791	San Francisco	CA	94120
			Dublin Public Library	200 Civic Plaza		Dublin	CA	94568-2619
			Dublin San Ramon Services District	ATTN: Ken Peterson	7051 Dublin Blvd.	Dublin	CA	94568-3080
			East Bay Regional Parks District	2950 Peralta Oaks Court	P.O. Box 5381	Oakland	CA	94605-0381
			Immigration and Naturalization Service	ATTN: Facilities & Engineering	24000 Avila Road (ROENG)	Laguna Niguel	CA	92677-3400

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
			Ione Band of Miwok Indians	Kathy Ramey, Interim Chairperson	P.O. Box 1190	Ione	CA	95640
			Jackson Rancheria of Me-Wuk Indians of California	Margaret Dalton, Chairperson	P.O. Box 1090	Jackson	CA	95642
			Land Services Division	Pacific Gas & Electric	3480 Buskirk Avenue, Suite 150	Pleasant Hill	CA	94523-4387
			Livermore-Amador Valley Water Management Agency	7051 Dublin Blvd.	P.O. Box 2945	Dublin	CA	94568-0945
			Public Works	City of San Ramon	2222 Camino Ramon	San Ramon	CA	94583-1350
			Real Estate Division	SBC	401 Lennon Lane, Room 205	Walnut Creek	CA	94598
			San Ramon Public Library		100 Montgomery Street	San Ramon	CA	94583-4707
			Tri-Valley Babe Ruth		8686 Fenwick Way	Dublin	CA	94568-3601
			Tuolumne Band of Me-Wuk Indians of the Tuolumne Rancheria of California	Kevin Day, chairperson	P.O. Box 699	Tuolumne	CA	95379
		Board of Supervisors	Alameda County	1221 Oak Street, Suite 536		Oakland	CA	94612

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
		Board of Supervisors	Contra Costa County	County Administration Building, Room 106	651 Pine Street	Martinez	CA	94553
		California Environmental Protection Agency	California Regional Water Quality Control Board-San Francisco Bay Region	Attn: Michael Bessette Rochette	1515 Clay Street, Suite 1400	Oakland	CA	94612
		California National Guard Bureau	Military Department	Attn: Captain Jeffery Kerns	9800 Goethe Road, Box 17	Sacramento	CA	95827-3561
		Chief Patrol Agent	Livermore Sector Headquarters	U.S. Border Patrol	6102 Ninth Street	Dublin	CA	94568-3312
		City Engineer	City of Dublin	P.O. Box 2340		Dublin	CA	94568-0233
		City Engineer	City of Pleasanton	200 Old Bernal	P.O. Box 520	Pleasanton	CA	94566-0802
		Commander	104th Division (IT)	ATTN: Engineer	987 McClelland Road	Vancouver	WA	98661
		Commander	91st Division (Training Support)	ATTN: Engineer	790 US Army	Dublin	CA	94568-5201
		Commander	Fort McCoy	ATTN: AFRC-FM-JA (Novotne)	100 East HQ Road	Fort McCoy	WI	54656-5263
		Commander	Naval and Marine Corps Reserve Center	2144 Clement Avenue		Alameda	CA	94501-1486

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
		Commander	Regional Training Site, Medical		790 US Army	Dublin	CA	94568-5201
		Commander	Western Army Reserve Intelligence Support Center		790 US Army	Dublin	CA	94568-5201
		Director	Camp Parks Communicatio ns Annex, USAF	Camp Parks Box 19	790 US Army	Dublin	CA	94568-5201
		Dublin City Council	The City of Dublin	100 Civic Plaza		Dublin	CA	94568
		Officer in Charge	CBMU 303, DET D, USNR (Seabees)	Camp Parks Box 6	790 US Army	Dublin	CA	94568-5201
		Planning Department	Bay Area Air Quality Management District	939 Ellis St		San Francisco	CA	94109
		The Adjutant General	State of California Military Department	ATTN: CAFE-RP (MAJ Marlow)	P.O. Box 269101	Sacramento	CA	95826-9101
Richard	Ambrose		City of Dublin	P.O. Box 2340		Dublin	CA	94568-0233
Dennis	Barry		Contra Costa County	Community Development Department	651 Pine Street – 4th Floor – North Wing	Martinez	CA	94553

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
Rhodora	Biagton		Dublin San Ramon Services District	7051 Dublin Blvd		Dublin	CA	94568-3080
David	Borchardt		HQ U.S. Army Reserve Command	ATTN: AFRC-EN (Borchardt)	1401 Deshler Street SW	Fort McPherson	GA	30330-2000
Barbara	Boxer	Senator		1700 Montgomery Street, Suite 240		San Francisco	CA	94111
Megan	Chen		Engineering & Environment, Inc.	Building 791 - ATTN: AFRC-FMC-ENV (Chen)	790 US Army	Dublin	CA	94568-5201
Schelia A.	Clark	Warden	Federal Correctional Institute, Dublin		5701 Eighth Street	Dublin	CA	94568-3399
Milford	Donaldson	Mr.	State Historic Preservation Officer	California Office of Historic Preservation	P.O. Box 942896	Sacramento	CA	94296-0001
Barbara	Duffy		Livermore Amador Valley Transit Authority (Wheels)		1362 Rutan Court, Suite 100	Livermore	CA	94551-7318
Terry	Escarda		California EPA – Department of Toxic Substances Control	Office of Military Facilities – Northern California Operations	8800 Cal Center Drive	Sacramento	CA	95826-3200
Dianne	Feinstein	Senator		One Post Street, Suite 2450		San Francisco	CA	94104

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
John	Fenstermacher	Mr.	Alameda County	Public Works Agency, Real Estate	399 Elmhurst Street	Hayward	CA	94544-1307
Calvin	Fong		U.S. Corps of Engineers – San Francisco District	ATTN: Regulatory Branch – 8th Floor	333 Market Street	San Francisco	CA	94105-2197
Janice	Gan		California Department of Fish and Game		P.O. BOX 850	Tracy	CA	95378-0850
Doug	Kolozsvari		Bay Area Air Quality Management District	939 Ellis Street		San Francisco	CA	94109
Janet	Lockhart	Mayor	The City of Dublin	100 Civic Plaza		Dublin	CA	94568
Steve	Lockhart	Mr.	Dublin Historical Preservation Association	4592 Pheasant Ct		Dublin	CA	94568-7518
Diane	Lowert		Parks & Community Services Director	City of Dublin	P.O. Box 2340	Dublin	CA	94568-0233
Linda J.	Mahon	, Test Coordinator	TRACOR Aerospace, Inc.	San Ramon Operations, Bollinger Canyon Rd	P.O. Box 196	San Ramon	CA	94583-0196
Rafael	Muniz	, Project Director	Residential Communities Initiatives	Clark Pinnacle, Bldg 1086	P.O. Box 10034	Fort Irwin	CA	92310-0034

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
Wayne	Nastri	Mr.	Regional Administrator	U.S. Environmental Protection Agency, Region IX	75 Hawthorne Street	San Francisco	CA	94105-3901
Shirley	Ng	Ms.	Bay Area Rapid Transit District	1330 Broadway, 12th Floor		Oakland	CA	945612
Eddie	Peabody		Community Development Director	City of Dublin	P.O. Box 2340	Dublin	CA	94568-0233
Richard	Pombo	Congressman		3000 Executive Parkway, Suite 216		San Ramon	CA	94583
Bonnie	Powers		Valley Spokesman Touring Club	P.O. Box 2630		Dublin	CA	94568
James	Sorensen		Alameda County	Planning Department	399 Elmhurst - Room 136	Hayward	CA	94544
LTC	Stratton		U.S. Army Corps of Engineers, Baltimore District	Realty Services Field Office CENAB-RE-RS	P.O. Box 1715	Baltimore	MD	21203-1715
Terry	Tamminen		California Environmental Protection Agency	1001 I Street	P.O. Box 2815	Sacramento	CA	98512-2815
Ellen	Tauscher	Representative		2121 North California Boulevard, Suite 555		Walnut Creek	CA	94596

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
Wayne	White		U.S. Fish and Wildlife Service	Sacramento Field Office	2800 Cottage Way, Suite W-2605	Sacramento	CA	95825
Carl	Wilcox		California Department of Fish and Game, Region 3	P.O. Box 47		Yountville	CA	94599
Phil	Wong		Planning Department	City of San Ramon	2226 Camino Ramon	San Ramon	CA	94583
Additions From Mail In Requests								
Jim	Haussener			7172 Regional Street	#299	Dublin	CA	94568
Dec 9 and 10, 2005 Scoping Meeting Attendees								
Richard	Ambrose		City of Dublin	100 Civic Plaza		Dublin	CA	94568
Samir	Arora		Parks Environmental				CA	
Kristi	Bascom		City of Dublin	100 Civic Plaza		Dublin	CA	94568
David	Behrens		DSRSD	7051 Dublin Blvd.			CA	
Mike	Bouchard		Resident	3309 Longmeadow Pl.		Dublin	CA	
Brooke	Bryant		Tri Valley Herald	4770 Willow Rd.		Pleasanton	CA	94588-2762
Steven	Buckley		Alameda County Planning Dept	224 W. Winton Ave.	#111	Hayward	CA	94544
Tony	Casadonte		Dublin Ranch HOA	3324 Oak Bluff Lane		Dublin	CA	94568

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
William and Patty	Chew			Camp Parks			CA	
Mike	Conklin		AUSA	2428 Talavera Dr.		San Ramon	CA	94583
Francesca	D'Onofrio		DTSC	8800 Cal Center Drive		Sacramento	CA	95826-3200
Nancie	De Prospero		Tri Valley Babe Ruth	8686 Fenwick Way		Dublin	CA	94568
James	De Rouen		Cong Pombo					
Anders	Ele		Self	5435 Aspen St.		Dublin	CA	
Allan	Graff		Parks	Bldg 790, 5th St.	Camp Parks	Dublin	CA	94568
William	Hansche		US Army	Camp Parks				
David	Haubert		Resident	4886 Redwood		Dublin	CA	
Jeff	Holmwood		RJA	5637 Chabot Dr. NE	#200	Pleasanton	CA	94588
Carolyn	Kleiner		Parks	Bldg 610, 790 US Army		Dublin	CA	94568
Darwin	Lee		PG&E	998 Murrieta Blvd.		Livermore	CA	94550
	Lockhart	Mayor	City of Dublin	100 Civic Plaza		Dublin	CA	94568
Peter	Oswald		Self	1800 Alma Avenue, #307		Walnut Creek	CA	94596
Mike	Parsons		Parks	Bldg 790, 5th St.	Camp Parks	Dublin	CA	94568
Michael	Reade		HQ 91st Div	Bldg 510, Evans Ave.	Camp Parks	Dublin	CA	94568
Michael	Rochette		RWQCB	1515 Clay Street, Ste. 1400		Oakland	CA	94612
Ryan	Rodriguez		Babe Ruth	8686 Fenwick Way		Dublin	CA	94568
Richard	Rose		DSRSD	4511 Sparrow Ct.		Dublin	CA	94568-7524
Kiley	Russell		Valley Times	127 Spring St.		Pleasanton	CA	94566-6623

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
Roger	Schmitt		6399th	127 Darrinson Dr.		Folsom	CA	95630
Ada Tommie	Simpson		Camp Parks History Center	4557 Alma Ave		Castro Valley	CA	94546
Mary	Starmer-Smith		Garrison	Camp Parks CMS		Dublin	CA	94568
E. W.	Sullivan	Col	91st Division	Camp Parks		Dublin	CA	94568
Tim	Timberlake		Alameda GSA	1401 Lakeside Dr.		Oakland	CA	94612
Don and Jackie	Van Meter		Self	7772 Gardella Dr.		Dublin	CA	94568-1808
Scott W.	Vorady		Federal Bureau of Prisons	5701 8th Street, Camp Parks		Dublin	CA	94568
Guy	Warren			PO Box 20812		Castro Valley	CA	94546
Vernon L.	Wright		RTS MED	22659 Sierra Ave		Hayward	CA	94541
David	Yee		NASA	Moffett Field M/S 19-11	Ames Research Center	Moffett Field	CA	94035
George	Zika		City of Dublin	8096 Peppertree Road		Dublin	CA	94568-1351
Ongoing Additions to List								
			California State Clearinghouse		P.O. Box 3044	Sacramento	CA	95812-3044
Gregg	Chislett	Chief	Environmental Branch, Public Works Division	USA Installation Management Agency, Southwest Region Office	2450 Stanley Road, Suite 101	Fort Sam Houston	TX	78234-6102
Liz	Clark		Chief, Environmental Office	U.S. Army Combat Support Training Center (CTSC)	P.O. Box 7090, Bldg. 238.	Fort Hunter Liggett	CA	93928-7090
Gary	Houston		Chief, Environmental Office	U.S. Army Combat Support Training Center (CTSC)	790 U.S. Army, Attn: AFRC-FMC-ENV,	Dublin	CA	94568-5201

First Name	Last Name	Title	Organization	ADDR1	ADDR2	CITY	ST	ZIP
Linda	Janssen		Department of Toxic Substances Control	Office of External Affairs	8800 Cal Center Drive	Sacramento	CA	95826
Thom	Kato		Lawrence Livermore National Laboratory	P.O. Box 808, L-627		Livermore	CA	94551
John	Love		Assistant Chief of Staff for Installation Management, Army Reserve	2511 Jefferson Davis Highway	(Rm. 9616)	Arlington	VA	22202
Dawn	Richmond			7324 Hansen Drive		Dublin	CA	94568-2741
Lesca	Strickland		IMCOM-AR	ATTN: IMAH-ARO (Environmental) (L. Strickland)	2511 Jefferson Davis Highway	Arlington	VA	22202-3926
Owena	Yang-Totorica		IMCOM-West	ATTN: IMSW-PWD-E	2450 Stanley Road, Suite 101	Fort Sam Houston	TX	78234-6102
			State Clearinghouse		P.O. Box 3044	Sacramento	CA	95812-3044

*Highlighted rows contain the names of persons who did not request that their names be added to the mailing list, or who specifically requested that their names not be added.

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